Railway Age

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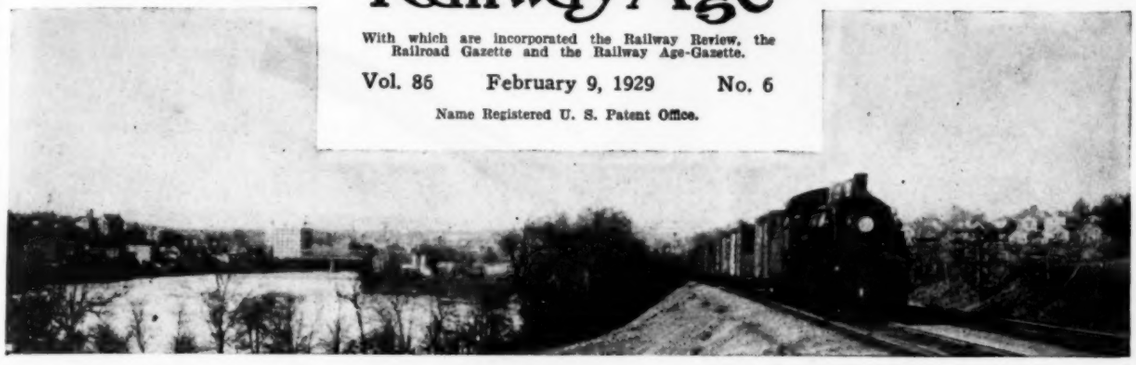

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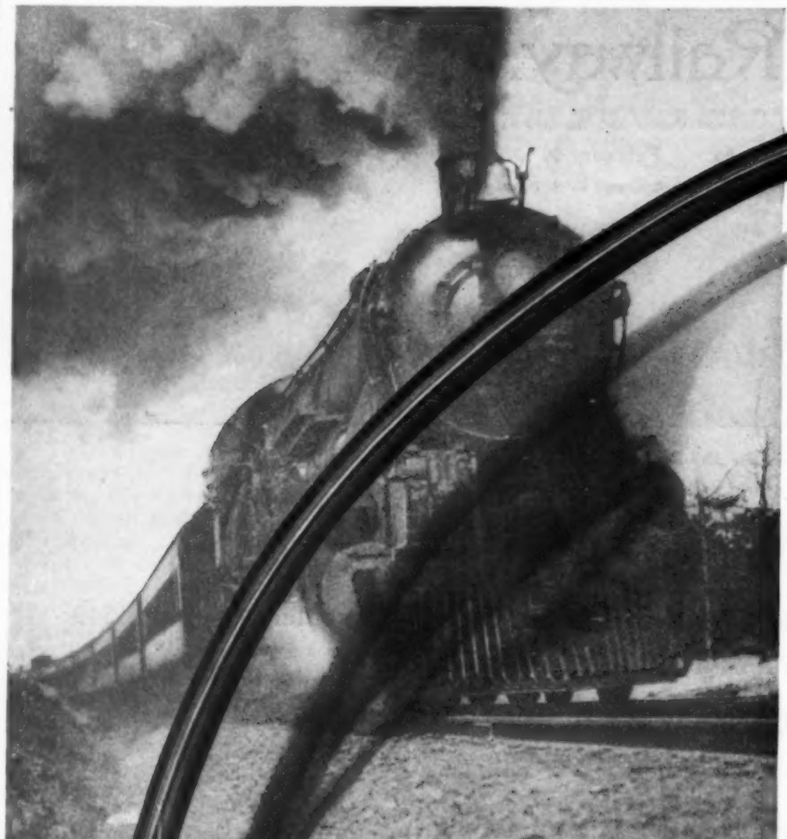

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A positive means of identifying Okonite insulation.

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Railway Age

Vol. 86, No. 6 *February 9, 1929*

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Indexes to Volume 85

THE indexes to the last volume of the *Railway Age*, July to December, 1928, are now ready for distribution. Those desiring indexes to this volume should advise the New York office, 30 Church street.

January Equipment Markets

FREIGHT car orders for the first month of the new year, as reported in the *Railway Age*, were substantially in excess of those reported during any one month in 1928. A total of 12,452 units of this type of equipment was ordered during the past month as compared with 3,248 for the corresponding month of the previous year. The November, 1928, figure was 6,100, the largest total number of orders for any one month in 1928, which fell to 4,668 for the last month in the year. Locomotive orders also show a decided increase over those for the first month of 1928 with a total of 28 as compared with three ordered in January, 1928. While orders for passenger car equipment fell somewhat below the figure for January, 1928, totaling 228 as compared with 649 for the first month of last year, this cannot be taken as an indication for the trend of buying in this type of rolling stock for the coming months. Inquiries for passenger cars totaling more than 150 were reported during the last week in January.

The Barometer of Railroad Interest in Motor Transport

THE Motor Transport Division of the American Railway Association will hold its next meeting at the Hotel Jefferson, St. Louis, from February 26 to March 1. Indications are that the division's committees have their subjects well in hand and that reports to be made at this session will be still more searching and thorough than those of previous meetings of the division. Such a statement about this division carries added weight, since it has already established an enviable reputation as an earnest and hard-working organization. Attendance at the preceding meetings of the division has included representatives of practically all railroad departments. This is as it should be, since motor transport is related to all of them. The last meeting, however, which was held in Detroit in October, broke all attendance records largely by reason of a great increase in the number of passenger traffic officers present. The program in preparation for the St. Louis meeting gives clear evidence that a further large increase in attendance is justified, not only on the part of passenger traffic officers, but by representatives of all departments—and particularly the freight traffic department. The problem of motor coach competition and of co-ordinating rail and highway passenger service is still with us. No one with a knowledge of the facts can doubt, however, that great strides have been made toward its solution—and that the approach of this solution has been greatly accelerated by the increasing interest of the passenger traffic officers, which heightened concern was given its first outward manifestation in the attendance figures of the Detroit meeting of the Motor Transport Division. The St. Louis meeting ought greatly to advance the progress made toward a solution of the problem of highway passenger transportation. More than that—it ought to make similar strides with the problem of motor truck co-ordination and competition. A greatly increased attendance on the part of freight traffic officers would assure such progress with this phase of the motor transport problem.

Giving Employees Credit

THE assistant general manager of the Gulf, Mobile & Northern inaugurated the new year in a rather unusual fashion. He dictated letters to each employee under his jurisdiction giving full details of the improvements in operation shown in 1928, together with comparative statistics showing the relative improvement, by years, for the period from 1921 to 1928, inclusive. Among these improvements were the following: Reportable personal injuries showed a decrease of 74 per cent; reportable train accidents, 37 per cent; pounds of coal per thousand gross ton-miles, 11 per cent. The cars and gross tons per train showed increases of 13 and 14 per cent respectively, while gross ton-miles per train hour increased 15 per cent. As has been pointed out in articles which have appeared in the *Railway Age* from time to time, much of this progressively improving showing may be attributed to the splendid co-operation existing between the management and the employees. In recognition of this fact, the assistant general manager's letters commended the employees for their conscientious efforts in making these records possible; in addition, a copy of the letter was placed in each man's service record as a tangible evidence of appreciation.

Railway Patrons Hold a Reunion

AN unusual event, reflecting a happy situation from a standpoint of both public relations and traffic, was recently arranged by more than 500 of the patrons of the Delaware, Lackawanna & Western summer tours. The railroad operated a series of nine of these tours, personally-conducted, over its lines and adjoining motor coach and steamship lines last summer.

A number of the patrons suggested a few weeks ago that it might be interesting if those who took part in the tours could hold a reunion and get acquainted again both among themselves and with those who were responsible for their comfort during the trips. Someone said that it would be impossible to even try to get so large a number of tourists together, but the officers of the railway in charge of the traffic department were willing to make the attempt. They offered to take charge of the arrangements for the entire affair. That they were successful is shown in the fact that not only did 583 persons gather for the dinner and dance, which was held at a large New York hotel, but the patrons of the tours paid the expenses of the reunion themselves, and had for their guests the officers of the railway, the proprietors of the hotels who were their hosts during the tours and the representatives of the transportation companies which worked in conjunction with the railway. The general passenger agent of the railway acted as toastmaster and the address of welcome at the dinner was given by the passenger traffic manager of the road.

A Correction

IN its issue for January 26, the *Railway Age* published an editorial entitled, "Commissioner Meyer on the Hoch-Smith Resolution", in which comment was made upon an address delivered by Doctor Meyer before the Milwaukee Traffic Club. In our editorial we said it was not probable that Doctor Meyer would have made his address without having previously submitted it to his colleagues, and added, "There can be little question, therefore, that the statement made by Doctor Meyer means that the commission understands the resolution to direct it to so regulate freight rates as to regulate profits in all the country's industries." We are advised that Doctor Meyer did not discuss his Milwaukee talk with any other member of the commission, that no member of the commission saw his address before its delivery, and that he is, therefore, solely responsible for everything that he said on that occasion. This means, of course, that the interpretation placed by Doctor Meyer in this address upon the Hoch-Smith resolution cannot properly be construed as the interpretation placed upon it by the entire commission.

The Traffic Department's Public Relations Opportunity

RAILROAD traffic officers and solicitors have one of the most difficult and important of all railroad tasks. Not only must they know all the details of their everyday work but they, more perhaps than any other one class of railroad men, form the principal source of contact with the railroads' most influential patrons. What is generally known as public opinion regarding the railroads is in large measure the reflection of the opinions, or at least the acquiescence, of these railroad patrons. To be sure, employees such as ticket agents and the trainmen probably come into contact with larger numbers of the public than do the traffic men, and their influence is important. On the other hand, such contact as these employees have with the public can serve only to build up a general disposition, favorable or unfavorable, on the part of the general public. With the traffic solicitor, however, the situation is different. His customer knows more about the workings of the railroads than does the average person whose direct contact consists only of a rail journey now and then and his opinions are more positive. In the second place, the traffic solicitor generally calls upon his customer at the latter's place of business and may be called upon to discuss general matters of railroad policy and performance. It seems plain that the traffic solicitor, adequately to represent his company, needs to be almost as well informed on railroad problems, policies and accomplishments generally as he does in the specific work of the traffic department. Do railroads utilize the full public relations potentialities of traffic department contacts? Do they make adequate provision for assuring that traffic solicitors are well informed on railroad problems generally and are able effectively to combat misinformation and unreasoning opposition wherever it appears?

99.97 Per Cent Perfect

TABULATIONS made from the current reports of average daily freight car surplus and shortage show that in the year just ended the railways of the country bettered all previous records in the matter of freight car distribution. These reports are issued four times a month. Of the 48 reports for the year 1928, absolutely no car shortages existed in 20 of the reporting periods. For seven consecutive periods, from the second week in March to the first of May, there was not a single car shortage on any of the Class I railroads. This remarkable efficiency in equipment distribution can be appraised at its true value only when compared with conditions that have existed in the past. In the year 1920, there was an average daily shortage of 81,592 freight cars. This means that every day, on an average, during that entire year, there were demands for 81,592 freight cars which the railways could not furnish at the time the cars were wanted. In 1921, because of the slump in business, the average daily freight car shortage fell to 1,454 cars, only to rise to 47,882 cars in 1922 when business picked up. Despite a still heavier traffic in 1923, however, better distribution of cars cut the average daily shortage down to 29,216. Since that time, car shortages have been practically eliminated, the average daily shortage being 1,047 cars in 1924, 443 cars in 1925, 286 cars in 1926, and 170 cars in 1927. However, it remained for 1928 to cap the climax in this remarkable record of improvement, for in the year just ended the average daily shortage amounted to only 42 cars. With total revenue carloadings for the year amounting to 51,576,731 cars, or a daily average of 140,920 cars, the record of 42 cars as an average shortage means that in 1928 the railways' freight equipment distribution was 99.97 per cent perfect.

When Oils Fail To Lubricate

WHY should roads with records of one and two million miles or more per hot box in passenger service suddenly experience numerous failures and embarrassing train delays due to this familiar cause, such as occurred on so many roads in northern parts of the country during January? Obviously the reasons, of which there are several, practically all relate in one way or another to the generally prevalent storm, snow and sub-zero temperature conditions. Water gets into the

journal packing and freezes, preventing the flow of oil to the journals by capillary attraction. The oil itself congeals and fails to lubricate. Packing, or lint from packing, accumulates at one edge of the brasses and works underneath, causing "waste grabs." The "human element," involved in packing boxes, watching their operation and applying preventive and corrective measures, is less efficient than usual. What is the answer? With due attention to the elimination of water and the proper packing of boxes with a good quality of journal packing, almost all of the other difficulties can be overcome by the selection and use of the right kind of oil. Motor oils, and, no doubt, car oils, are now on the market which congeal at 18 deg. F. The result, when a journal lubricated with this oil is subjected to temperatures of ten to twenty degrees below zero, can be more readily imagined than described. In passenger service, particularly, where the high speeds often cause damage before the journal packing has time to warm up and start lubricating, it is particularly important not to use new oils and "reclaimed" oils of doubtful quality and unknown cold test or congealing point. The railroads must, of course, give due consideration to first cost in buying car oils, but they should not give it *first* consideration. The experience of the last few weeks indicates that almost any oil is cheap if it possesses the necessary physical characteristics to lubricate under the adverse conditions encountered.

Selection of Electric Motors

ELECTRIC motors used in shops are no longer simply power converters designed to turn a shaft, but are usually made to suit specific requirements. To name some of the newer types, there are line-start motors, capacitor motors, quick-reversing motors, high-frequency motors, etc. The line-start motor is an alternating current machine that can be connected directly across the line without a starting compensator and not cause excessive inrush of current at starting. Such motors are common in sizes up to 30 horsepower. They may be had either as high torque motors for starting heavy loads or as normal torque motors which have better efficiency and better power factor. The capacitor motor is now being developed to provide a small motor that is highly dependable, quiet in operation and does not cause radio interference. The greatest demand for such a motor is created by household refrigerators, but the type lends itself to such applications as driving small pumps, small blowers, fire alarms and the like.

The reversing motor is an older type that is particularly suitable for planer drive. It eliminates shifting belts and greatly increases the amount of work the planer can perform. The high-frequency motor has been used for some time to drive woodworking machinery and promises wide application for driving portable tools such as drills, grinders and reamers.

The user of a single motor can ordinarily select the one that best suits the work to be done, but the railroad purchaser of many motors must consider not only specific application but also interchangeability, effect on power supply and cost of stocking spare parts. A common mistake often made in the past is to use a motor that is too large for the work required of it. Particularly in the case of induction motors this causes poor efficiency and low power factor with resultant high cost of power and high cost or overloading of distribution circuits. The right motor for the job is greatly to be desired if it does not require too much in the way of special forms of power and too great a sacrifice of interchangeability. Certainly intelligent general supervision over the selection and application of all motors is greatly to be desired.

Transcontinental Coach Lines and the Railways

CONSIDERABLE interest was aroused some months ago when transcontinental service in the motor coaches of a single company was first offered to the public. Since that time other independent motor coach lines have consolidated into systems and have established similar through service between many widely separated points. Much has been written about them, but nothing, perhaps, more informative to railway traffic officers than a recent report of representatives of the Trans-Continental Passenger Association, describing their experiences in travel between Chicago and Los Angeles by the motor coaches of the two principal transcontinental lines. An article based upon this report is published in this issue of the *Railway Age*.

Delays and Discomfort

Briefly, what did the first-hand investigators find? They found that the published schedule of four-and-one-half days, at least at the time they made their trips, was not regularly maintained, as much as eight days having been required for the journey on one line between Chicago and Los Angeles. The equipment furnished in some instances was far from the best. Discomfort from narrow seats, lack of temperature control and poor roads were frequently encountered. Eating houses recommended by the drivers, and rest room facilities, usually not maintained by the companies, left much to be desired.

On the other hand, the investigators reported a considerable amount of through traffic on the coaches, and an even greater amount of local business. Fifty more or less long-distance travellers were encountered by the investigators on the coaches in which they rode. In spite of the low rates charged for the transportation—higher westbound than eastbound, incidentally—the through business handled was considered to be sufficient to pay all or a substantial part of the operating expenses involved, without adding the revenue from local passengers. The chief attraction of motor coach travel, apparently, is the low fare charged, virtually all of the passengers noted having been of a type who probably could not afford to pay railroad and sleeping car rates. On the other hand, the frequent delays encountered by the investigators, making necessary one or more overnight stops at hotels, increased their expenses to the point where they closely approximated railway fares for day coach passengers.

Low Rates a Factor

Almost without exception, the motor coach passengers interviewed stated that they had never before utilized long-distance coach service and, similarly, they stated that, in view of the hardships encountered, they would never do so again. Perhaps this should not be taken too seriously, however, since the low rates, to

the class of passengers involved, are a factor outweighing considerations of comfort and pleasure. They might cease to look upon long-distance motor coach travel as a joy-ride, and still use it under force of circumstances.

While it is true that the picture of their journeys painted by the investigators is decidedly unfavorable, a case for the motor coach lines can readily be made. In the first place, the service is comparatively new and is a pioneering effort. This might be accepted as an adequate excuse for some poor equipment and for many of the discomforts encountered. Furthermore, the tests of the service were made at a time when weather conditions were at their worst, and the effect of adverse weather is particularly strong where the roads are poor. In fairness, it should be noted that most of the delays encountered by the investigators were due to bad weather. It should also be pointed out as significant that, while the performance of one line was particularly bad, the other managed to keep to its schedules with reasonable regularity.

Service May Improve

This is not an attempt to make a case for or against the transcontinental coach lines. That their service, as at present supplied, leaves much to be desired, seems self-evident. The investigation of the service made by the Trans-Continental Passenger Association was well worth while, since it has served to give the railways with which these highway lines are competing an idea of what this competition amounts to. To read the report of the investigators and jump to the conclusion that transcontinental coach service is a total failure, however, would be a mistake. If its present deficiencies are allowed to continue to exist, this service may be expected to die a natural death, in spite of the attraction of the low rates charged. But it seems more reasonable to anticipate that the service will improve with experience. Certainly the railways, in considering means of meeting motor coach competition for transcontinental passenger traffic, should study the report of the situation dispassionately and in the light of the circumstances mentioned.

A Sorry Situation

SEVEN means of warning and protection—a watchman, a policeman, gates, a bell, an annunciator system and two signs—are provided by the Long Island Railroad at many of its more important grade crossings for the protection of the public. From four to six means of warning and protection are provided at many other crossings. The grade crossing presents a serious problem on all roads and promises to do so for many years to come, in spite of the efforts of the railways, unless the public ceases its demands for additional crossings and becomes more thoroughly awakened to the necessity of approaching and crossing all crossings cautiously.

Elsewhere in this issue appears an article describing the grade crossing problem of the Long Island Railroad and the manner in which that road deals with it, which is of interest not only because of the acuteness of the problem on this relatively short road, but also because of the extent to which it has gone in affording crossing protection to the public on the highways. It is true that the Long Island has an unusually difficult grade crossing problem with about 359 important grade crossings in the metropolitan district of New York, where dense, high-speed, multiple-track train operation and practically continuous street and highway traffic combine to make the situation particularly severe. But can this be an excuse for the toll of about 350 crossing gates which are run into and broken or damaged annually by motorists? For grade crossing maintenance alone, this road spends $175,000 annually, and to this must be added more than $1,000,000 which it pays yearly for manual crossing protection, not to mention the cost of new crossing protection equipment.

Where it is impossible or not feasible to eliminate crossings or to separate traffic, which is true in many cases, the situation can be remedied only by educating the public, and by the constant vigilance of the railways in seeking more effective and economical means of providing adequate crossing protection. The Long Island should derive some satisfaction from the fact that, whereas there were 36 fatalities and 60 non-fatal accidents at its crossings during 1927, there were only 33 fatalities and 25 non-fatal accidents at its grade crossings in 1928.

Accident Prevention

THE work of the safety supervisor may be described, about 99 per cent of the time, as telling employees things that they already know, but do not know well enough. This is inevitable, taking human beings as they are. But the other one per cent of his activities are more interesting. Not long ago a speaker in a safety meeting introduced a point somewhat novel, in public discussions, by citing records of a number of shopmen which clearly showed, after five years, that John Doe was incurably careless while Richard Roe could be depended on to take care of himself, and also to be duly thoughtful of his fellow-workers. The foreman was left in no doubt as to how to classify the two men. (Whether or not he had the courage to dismiss Doe is another question).

At the recent safety conference in New York, reported in the *Railway Age*, January 26, page 253, Thomas H. Carrow called upon his fellow specialists to make a radical improvement on this idea; he declared that we ought to educate ourselves up to the point of classifying employees at the beginning instead of the end of the five-year period. How can this idea be carried out? If we try to formulate the rule how to do the trick we are back in the region of telling ourselves what we already know—but do not do. A school teacher in New York city, whose pupils took so many prizes that her fellow teachers began to envy her, was asked to give her rule. She had none to give; she simply replied that it must be because she had "kept everlastingly after them." She had, without doubt, worked many extra hours which had not been considered when the size of her salary was fixed. Whether in the New York schools, or railroad schools, the remedy for the difficulty is extremely simple, yet always difficult.

In another column there will be found a brief extract from one of Mr. Carrow's records of faults found, on a certain division, when, for two weeks, cases of observed negligence *not resulting in any accident* were systematically tabulated. This may be called one of the rudimentary features of the task of classifying men before they commit blunders which result in actual damage. In most of the cases here cited the action taken was simply a caution. In others the record says "reprimanded"; and in a few there were suspensions.

Solving the Country's Most Acute Grade Crossing Problem

Long Island spends more than $1,190,000 annually in warning and protecting highway traffic

ONE of the most serious problems of the Long Island Railroad in providing the people of Long Island with fast, safe and dependable transportation, and one to which a large amount of attention is given, is that of maintaining and protecting its grade crossings, and trying to educate the public in crossing safety practices. That this is a serious problem is seen in the fact that, with a total of only 397 miles of lines, this road is crossed at grade approximately 601 times by public highways or other thoroughfares, and in addition, is crossed by about 305 private roads or driveways, including some used publicly. More serious, 359 of the public crossings are located within the metropolitan area of New York, in the Boroughs of Brooklyn and Queens, and in Nassau county, where multiple tracks are the rule, where train service is frequent, and where vehicle and pedestrian traffic is dense.

Evidence of the frequency of train traffic in this area is seen in the record of June, 1928, which, while slightly higher than the average throughout the year, shows that the Long Island operated over its lines a total of 30,002 regularly scheduled and 3,046 extra trains during that month. Most of these trains were in high-speed steam and electric commutation service to and from New York City, and practically all of them operate in and out of the metropolitan area on a multiple-track system of from two to eight tracks, where highway traffic at crossings is the heaviest. At many of these crossings, this class of traffic is so dense as to be practically continuous, thousands of vehicles crossing the tracks daily, in addition to thousands of pedestrians.

L. I. Has Eliminated Many Crossings

With such conditions prevailing, brought about mainly by the increasing use of motor vehicles and the rapid development of the Island, particularly in the territories served by the railroad, the Long Island is confronted with what is probably the most severe crossing problem in the country. The railway recognizes the severity of this problem, and, as outstanding as the problem itself, is the effort made by the road to eliminate grade crossings, to make the remaining grade crossings safe, and to educate the public and its own employees in crossing safety practices.

The elimination of grade crossings through the separation of grades is considered by many as the ultimate solution of the grade crossing problem, and yet, a solution which, because of its magnitude, can be effected only over a long span of years, and then only with the close co-operation and assistance of civic authorities and the public. The Long Island fully recognizes the value and effectiveness of grade crossing elimination, and has lent its effort in this regard. This is evidenced

High-Speed Electric Operation, but Fully Protected

Many Crossings Have a Steady Stream of Highway Traffic

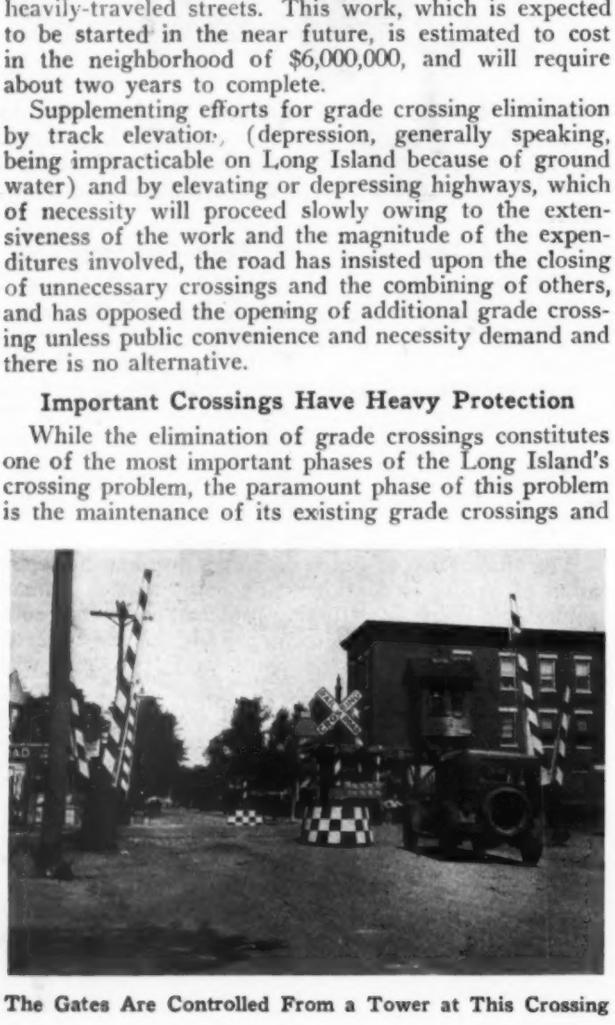
by the fact that, with only a few exceptions, more grade crossings have been eliminated on this road during the last 15 years than on any other road in the country. Similarly, in proportion to mileage, it has expended more money for grade crossing elimination during this same period than any other road in the country, the total expenditure exceeding $20,000,000. As a result, there are now 349 public highway and pedestrian crossings on the Long Island where highway and street traffic is entirely separated from rail traffic. At 147 of these crossings, rail traffic is carried overhead, while at the remaining 202, the railroad tracks extend under highway and foot bridges.

The road's interest in grade crossing elimination is shown further by the fact that it is now completing plans for a grade crossing separation project at Jamaica, N. Y., wherein eight tracks will be elevated through a distance of about 5,000 ft., crossing over five heavily-traveled streets. This work, which is expected to be started in the near future, is estimated to cost in the neighborhood of $6,000,000, and will require about two years to complete.

Supplementing efforts for grade crossing elimination by track elevation, (depression, generally speaking, being impracticable on Long Island because of ground water) and by elevating or depressing highways, which of necessity will proceed slowly owing to the extensiveness of the work and the magnitude of the expenditures involved, the road has insisted upon the closing of unnecessary crossings and the combining of others, and has opposed the opening of additional grade crossing unless public convenience and necessity demand and there is no alternative.

Important Crossings Have Heavy Protection

While the elimination of grade crossings constitutes one of the most important phases of the Long Island's crossing problem, the paramount phase of this problem is the maintenance of its existing grade crossings and



The Gates Are Controlled From a Tower at This Crossing

the protection of the public using them on both trains and highways. That this is recognized by the Long Island is evidenced by the extensiveness of the protection which it affords at the more important crossings, and the amount which it spends for crossing protection and maintenance.

Of the 601 public grade crossings on the road, 23 are protected by watchmen or flagmen, gates, bells and signs; 175 by watchmen, gates and signs; 15 by watchmen and gates, 32 by gates, bells and signs or gates and signs, the gates being operated by watchmen in charge of other crossings; 14 by watchmen, bells and signs; 31 by bells, flashlight signals and signs; 45 by bells and signs only; 18 by watchmen and signs; and 292 by signs only. Other crossings not included in the above have protection by watchmen, gates and bells, watchmen only, or bells only, while in many instances, crossings are protected by wig-wag or flashing-light signals in addition to the other warning devices which may be in service. In all, there are 251 crossing gate installations and 735 crossing watchmen on the road. The extent to which the gates are used is evidenced by the fact that 220 of them are maintained in operation 24 hours each day, while practically all of the remaining gates are attended during the two shifts from 6 a.m. to 10 p.m.

In addition to this extensive protection, practically every crossing has a standard warning sign 300 ft. in advance of the crossing on each side. Further, 63 of the most heavily traveled crossings, in addition to being provided with watchmen, gates, and warning devices, are further protected by trafficmen, in police uniforms, who are commissioned New York State police officers. Track circuits control all automatic warning devices, which give warning of approaching trains when they are at least 1,000 ft. in advance of the crossings, and supplementing this, in order to preclude a man-failure where traffic is heaviest, 90 of the crossings are linked by an annunciator system operated through a bell code. Thus a large number of crossings are protected by seven means of warning in an effort to make them as safe as is possible. Other means of adding to the comfort and safety of the public at its crossings include careful attention to the maintenance of crossing pavement and the removal of all surface obstructions in the vicinity of crossings which might impair a clear view of approaching trains.

The exact total cost of this extensive crossing maintenance and protection has never been computed inasmuch as it involves, aside from the direct items of expense, many auxiliary items such as the part-time assistance of the engineering and signal departments and of the section forces, which cannot readily be segregated and reported. Sufficient, however, to indicate the magnitude of this expense, is the fact that crossing maintenance alone on the Long Island for the last three years has cost from $173,000 to $188,000 annually, and manual crossing protection has cost from about $1,000,000 to $1,080,000 yearly.

A. R. A. Signal Section Flashing Light is Standard

Among the many crossing protection devices in use on the Long Island, there are a number of distinct types and classes, this being brought about largely through the gradual development of more effective devices, and an effort on the part of the road to install the most suitable and up-to-date equipment available when the need for additional equipment arises. All of the crossing gates in service are of either the single-arm or double-arm types, and all except two sets of gates are manually operated, this type of gate having been found well adapted to the requirements of the various crossings on the road. The two gate installations not controlled manually are of the electro-pneumatic type. Practically all of the gate installations are operated singly, although there are a few instances where the gates are controlled by a watchman in charge of two crossings.

All of the newer flashlight signals on the road are of the Signal Section, A. R. A. design, with two lights placed horizontally on the mast, but a number of the

older installations consist of smaller diameter flashing lights mounted either horizontally or above one another. The warning bells in service are of a number of different types, all designed however, to effect the same result, while the sign at each crossing is the standard diamond-shaped frame structure required in New York State.

Instructions Govern Attendants at Crossings

Where watchmen are maintained, they are considered the backbone of the protection afforded, it being their sole interest and duty to protect lives and property on the crossings, taking all measures that may be necessary to that end. While much is left to their discretion in handling unusual conditions which arise, all of their regular duties and rules for their conduct are carefully defined in a set of instructions which are posted prominently in each watchman's house or shanty.

The equipment issued to each crossing for the use of the watchman on duty consists of a book of rules, a hand "stop" disc, two red flags properly mounted on staffs, one white lantern, two red lanterns, several fusees, and one pair of gate lamps for each set of gates. The instructions govern the use of this equipment during both day and night and in all cases of emergency.

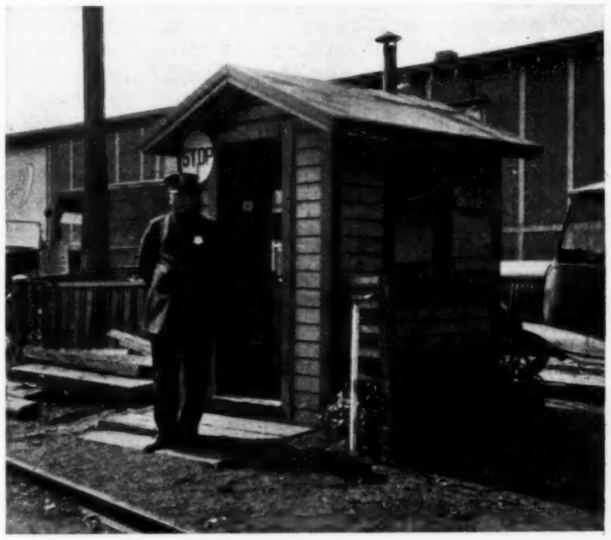
The trafficmen assigned to the crossings where conditions are unusually severe, are in every sense additional watchmen clothed with police authority, assigned to assist in protecting the crossings, and, as in the case of the watchmen, all of their duties and rules of conduct are well defined in a set of instructions which are posted at each crossing. The normal position of the trafficman is in the center of the crossing, visualizing in all directions. On the approach of a train, he blows one blast on a whistle as a signal to the watchman to lower the crossing gates, it being required that this shall be done in sufficient time to permit the placing of the gates in the fully closed position before trains are within 1,000 ft. of the crossing. After a train has passed and the trafficman assures himself that there are no trains approaching in either direction, he blows two blasts on his whistle as a signal for the watchman to raise the gates.

Both the watchman and the trafficman at the various crossings have their individual houses or shanties, it being standard practice, wherever possible, to locate them diagonally opposite each other, on opposite sides of the track. Ordinarily the shanties are placed at the ground level, but where necessary, in order to afford clear visibility of both the tracks and the crossings, such as near high station platforms or where the watchman is located at an intermediate point controlling two crossings, the houses are placed at a higher level on frame towers.

Annunciator Bells Keep Watchmen Posted

The annunciator system installed between the crossings on the heaviest travelled sections of the road is merely a system of bell circuits connecting adjacent crossings, with push buttons and bells located in each watchman's shanty. Through this system, which employs a simple bell code, each watchman is in direct communication with the crossing watchman on each side of him, and is required to warn them of the approach of trains and of any special conditions which might affect the situation at their crossings. As soon as the annunciator message is received, the watchman receiving it acknowledges it in code, and in due time passes the message along if it affects the crossings beyond him.

Maintenance of the crossings and of all of the crossing protection equipment and devices is in direct charge of the maintenance of way department. Like the practice on most roads, all electrically-operated crossing warning devices are maintained by signal forces, all watchmen's and trafficmen's shanties, and all crossing gates are maintained by bridge and building forces, and all crossing pavements and the 130 sets of farm gates on the road are maintained by the track forces.



Police in Uniform Are in Attendance at 63 Crossings

In the maintaining of crossing gates, a foreman and a gang of from 14 to 16 men are assigned to this work constantly through the week, with a special gang to take care of gate repairs on Sundays. By far the greatest amount of the work of these gangs is repairing gates which have been broken or damaged by motorists. This is evidenced by the fact that, in spite of the care exercised constantly by the crossing watchmen in lowering their gates, about 350 gates a year, or an average of about one set of gates a day, are run through and either damaged or broken.

The maintenance of the pavement on the crossings is one of the major items of crossing maintenance expense, not alone because of the large number of crossings involved, but also because of the many multiple-track crossings of from two to eight tracks, and the density of the highway traffic. Many types of crossing pavement have been tried and are in use on the Long Island, but the standard crossing pavement of the road is a combination of planking and a special asphalt mixture, the asphalt being used between the rails and in the inter-track space, between heavy planking which lines both sides of each rail.

Much Attention is Given to Safety Promotion

Supplementing the extensive care and protection afforded grade crossings on the Long Island, and of no less importance, is the safety work which the road is promoting in the constant effort to educate both its employees and the public in crossing safety. This particular work is under the direction of a system supervisor of safety and is carried out mainly through local safety committees which cover every section of the road and represent every department. These commit-

tees have regularly scheduled meetings, at all of which the various phases of safety are given consideration.

With grade crossing safety of so much importance, much of the effort of the safety committeees is directed along this line. This includes group meetings of the watchmen and trafficmen, where their problems and safety measures are discussed, constant unofficial observation of all crossings, and an annual official inspection of all crossings.

At the annual inspection of the crossings, which is made in connection with the annual national "Careful Crossing Campaign" of the railroads, certain of the safety committeemen are assigned to each of the more important crossings, and not only make thorough observation of all physical conditions and the manner in which the crossings are protected, but also make a careful check of all traffic using the crossings. In this latter respect, a traffic count is made over a period usually of from six to ten hours, and a record is made of all motorists who either exercise unusual caution in crossing the tracks, or who exercise little or no caution. In each case, the speed of the vehicles over the crossing, and any special circumstances, are reported, so that, to a certain extent at least, the Long Island has a record of those who use its crossings, both cautiously and recklessly.

Education Campaigns Help

Another means of increasing crossing safety employed on this road is through intensive campaigns of public education which involve principally, safety literature, posters, signs, and safety talks. All of these efforts are effecting results in a number of ways, not the least of which is the increased spirit of co-operation which is being manifested on the part of the public. This is evidenced by a careful estimate made from records, that only about five per cent of those using the railroad crossings on Long Island are distinctly careless, whereas, in previous years, and in other sections of the country, such estimates have been considerably higher.

Further evidence of this fact, and of even a more concrete nature, is seen in a comparison of the crossing accident record of 1927 with that of 1928. This shows that whereas there were 36 fatalities and 60 non-fatal accidents at grade crossings on the Long Island during 1927, there were only 33 fatalities and 25 non-fatal accidents at these crossings in 1928.

* * *

Westbound on the Pennsylvania, Near Glen Osborne, Pa.

Checking Negligence on the Pennsylvania

THOMAS H. CARROW, superintendent of safety of the Pennsylvania Railroad, replying to questions connected with his recent brief address before a meeting of safety specialists in New York city, illustrated his accounts of what is being done on the Pennsylvania by citing a record, recently made on one of the divisions of that road, for a period of two weeks, in which trainmasters, yardmasters, roadmasters, master mechanics, supervisors and track foremen took special care to make record of instances of violation of rules which did not result in any loss, injury or damage but which called for a caution or reprimand. From this record, the following illustrative instances are copied:

Operating Department

Brakeman.—Standing too close to end of car.
Brakeman.—Not keeping dog against ratchet.
Brakeman.—Not properly braced when standing on moving car.
Brakeman.—Walking backward ahead of moving car.
Fireman.—Failing to put poker in proper position.
Brakeman.—Failed to secure switch lever.
Conductor.—Allowed boom of rail-loading device to foul main track without permission.
Flagman—Did not place torpedo.

M. W. Department

Track Foreman.—Failed to use goggles when cutting rail.
Painter.—Using defective ladder.
Carpenter.—Improper use of track dolly.
Trackwalker.—Not keeping proper lookout.
Laborer.—Crawling under stored engine.
Laborer.—Using claw bar improperly.
Car Inspector.—Throwing rubbish on tracks.
Laborer.—Using defective tool.
Laborer.—Allowing tools to lie around.
Laborer (work train).—Riding on end sill of car.
Car Inspector.—Testing air without using blue flag.

Maintenance of Equipment Department

Hostler.—Overloading tender.
Laborer.—Not wearing goggles when heating rivets.
Laborer.—Not waiting until turntable stopped before getting off.
Laborer.—Using foot to put coupler in position between engine and tender.
Tender Repair Helper.—Getting on engine improperly.

Mr. Carrow's code of principles for the guidance of activities in the safety department is embraced in eight major paragraphs. Paragraph 1 reads:

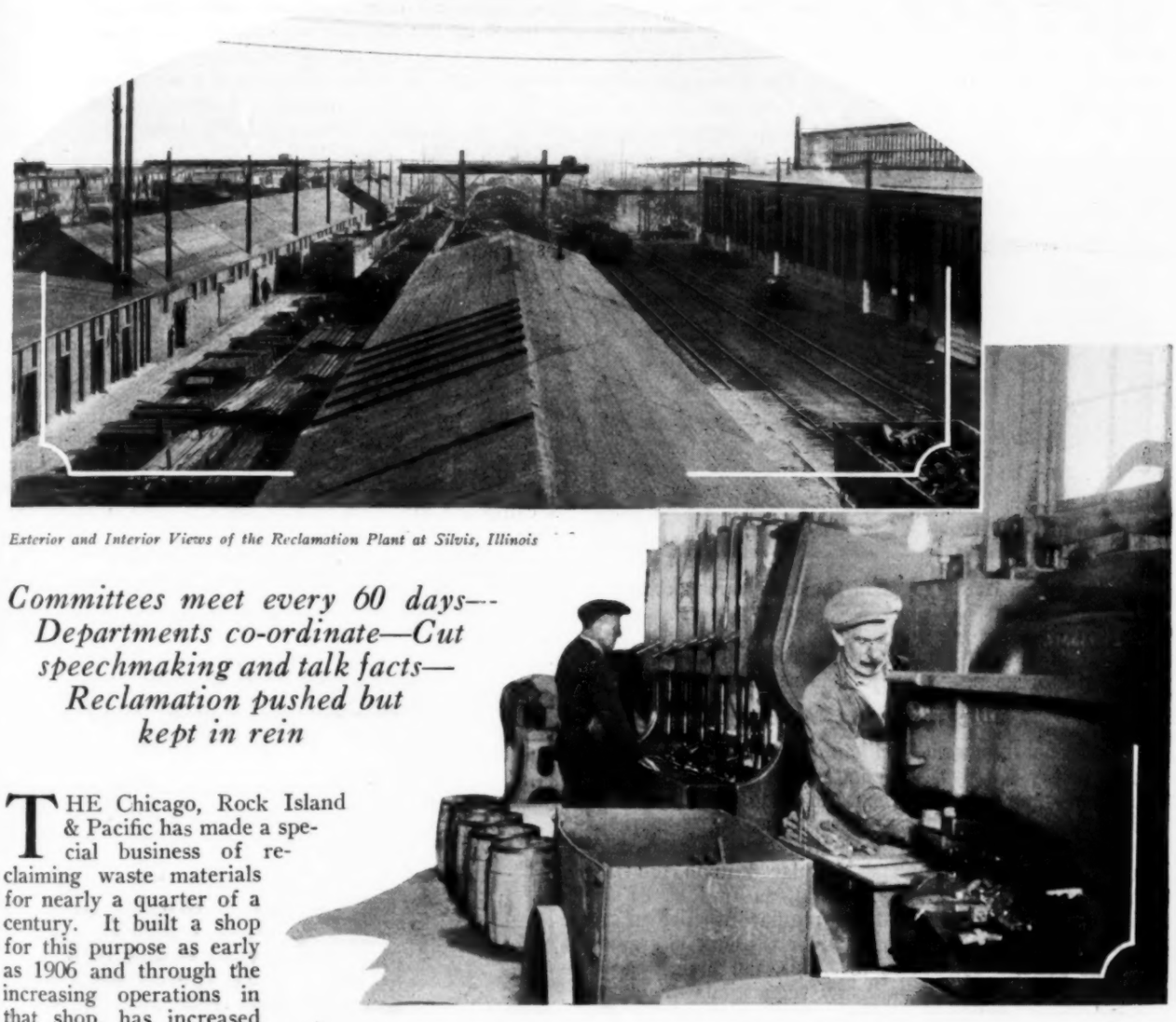
Code of Principles

"All violations of rules, all acts of negligence or carelessness and all unsafe methods of work which might result in accident shall be considered just as serious and shall receive the same attention and cause the same action to be taken by officers and supervisory forces as if an accident resulted."

Following a statement of the details of investigating and following up all injuries or accidents, regardless of their relative importance or unimportance, this code requires a formal safety inspection or survey every six months, in addition to current supervision and observation. Besides the usual tabulated and classified records, a monthly running record of all injuries to employees and train accidents is kept by the division superintendent.

A BILL to permit common carriers to give free carriage or reduced rates to members of the Board of Railway Commissioners of the Dominion of Canada has been introduced in the House by Representative Newton, of Minnesota. The bill provides that nothing in the interstate commerce act shall be construed to prohibit a common carrier from giving such concessions to members of the board and its officers and employees while engaged upon the official business of the board.

Rock Island Keeps Eye on Material Waste



Exterior and Interior Views of the Reclamation Plant at Silvis, Illinois

Committees meet every 60 days—Departments co-ordinate—Cut speechmaking and talk facts—Reclamation pushed but kept in rein

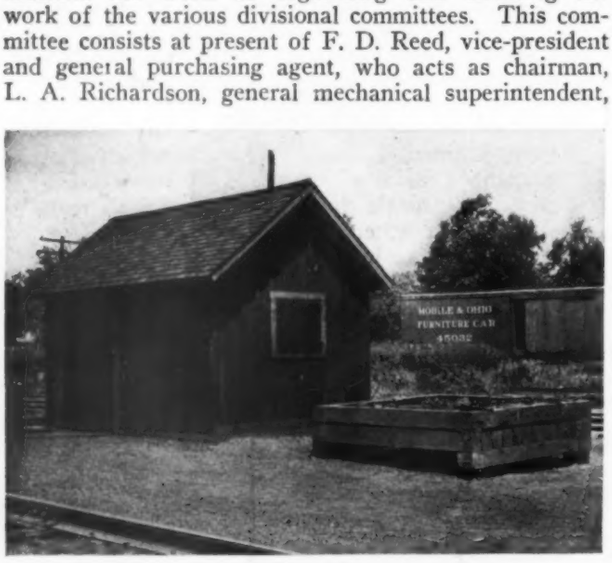
THE Chicago, Rock Island & Pacific has made a special business of reclaiming waste materials for nearly a quarter of a century. It built a shop for this purpose as early as 1906 and through the increasing operations in that shop, has increased its net income and has given encouragement to the introduction of similar work in other parts of the country. An unusual feature of the Rock Island's reclamation work, however, lies in the fact that consistently for 13 years, this work has not only been promoted, but at the same time has been controlled jointly by all departments concerned, through committees of responsible officers who have made it their business to comb the property for waste at least six times a year and to settle controversial questions in the interest of all concerned.

Committees on Each Division

There are 13 operating divisions on the Rock Island; each of these divisions has a reclamation committee, consisting of the master mechanic, the division engineer and the division storekeeper, and with as many subcommittees as each divisional committee may organize to work in an auxiliary capacity at important terminals. The divisional committees are permanent, but to sustain interest, the chairmanship is rotated so that the master mechanic will serve one year, then the division engineer and then the storekeeper. Each of these committees meets every 60 days. When holding meetings, first one terminal is chosen and then another until the committee has made the rounds of all points warranting attention on the division. The plan is to give the day over to the work at each point and a time is therefore selected when all members of the committee can be present.

The officers of these terminals, comprising the train master, master carpenter, yard master, section foreman, etc., also the division superintendent, shop superintendent and traveling engineers stationed or visiting there, are invited to be present at each of these meetings, which increases the attendance to 10 or 15 key men,

and after the meetings, these men inspect the terminal to correct any conditions that invite attention. In each case, the chairman acts as secretary, and a report is prepared of all the subjects discussed, suggestions made and action taken by the divisional committee in connection with its own findings or after collaborating with the terminal committee which may be organized at that point. These reports are submitted in typewritten form to a general reclamation committee, which assumes the work of organizing and directing the work of the various divisional committees. This committee consists at present of F. D. Reed, vice-president and general purchasing agent, who acts as chairman, L. A. Richardson, general mechanical superintendent,



Standard Scrap Dock at Section Houses Where Reclamation Starts

R. H. Ford, assistant chief engineer and C. H. Rost, general storekeeper, who acts as secretary.

Officers Attend Meetings

The general committee, like the divisional committee, meets every 60 days, but chooses the alternate months to allow time for the preparation and delivery of all divisional reports. In each case, a day is pre-arranged that will assure the personal attendance of the committee members. Emphasis is placed upon the fact that the members of the general, as well as of the divisional committees, make a regular practice of attending the meetings, rather than to send alternates. At the general committee meetings, the divisional reports are read in full, and any suggestions or recommendations contained in them are approved or disproved at once, if possible, and the decisions reached are incorporated in the minutes. If this is not possible, they are referred to the proper members of the general committee for investigation, and their report incorporated in the minutes, when received.

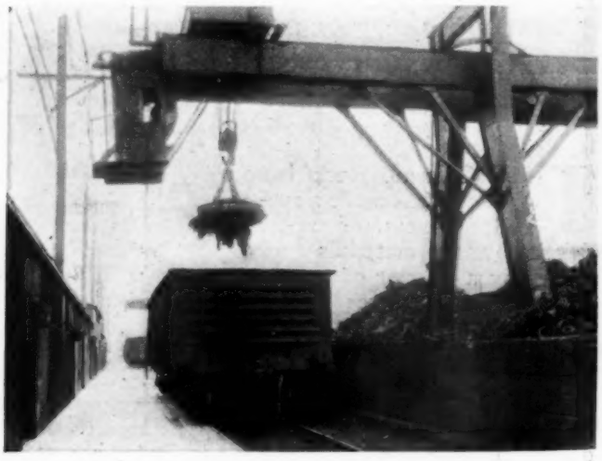
Committee Suggestions Adopted

Following the general committee meeting, the divisional reports and the report of the general committee's discussions and actions are compiled in mimeograph by the secretary of the general committee and copies are mailed to all operating officers as well as to all members of the standing committees for their information as to what each divisional committee is doing, as well as for their guidance, and the suggestions approved by the general committee, as shown by the minutes, are adopted as standard practice and put into effect wherever facilities are available.

A feature of these meetings, aside from the certain attendance of the proper officers, is the absence of lengthy papers or addresses which deal only generally with problems under consideration. The committees are not interested in speechmaking, but in facts. Since the meetings' aim is to keep interest up to pitch everywhere, as well as to settle questions harmoniously, they are freely given over to reports on what each division is doing in all lines of waste elimination and a point is made in the minutes to identify the persons doing the work and making the suggestions. The meetings are confined to waste elimination matters and not to such subjects as employee relationship and safety, questions of this character, being referred to other organizations.

Variety of Topics Extensive

The minutes of the general committee meeting of last August give an idea of the procedure and the variety of questions and problems reviewed. There are 16 pages to that report and over 100 paragraphs of from 2 to 20 single-spaced lines, each paragraph dealing with a single announcement, suggestion or decision relating to the work under discussion. The report, for example, starts with the minutes of the Chicago meeting, held at the Gresham terminal. The first paragraph deals with track tools. Quoting from the report, "The subject of watching track tools and returning any surplus to the store was brought up and there will be a campaign made on this at once." The next subject was loading scrap cars, the division superintendent who attended the meeting urging that cars be filled to capacity and properly loaded to prevent material falling off and causing accidents. Another subject was station-



The Scrap Dock Cranes Also Serve the Reclamation Plant—Note Concrete Road Which Was Made from Reclaimed Cement

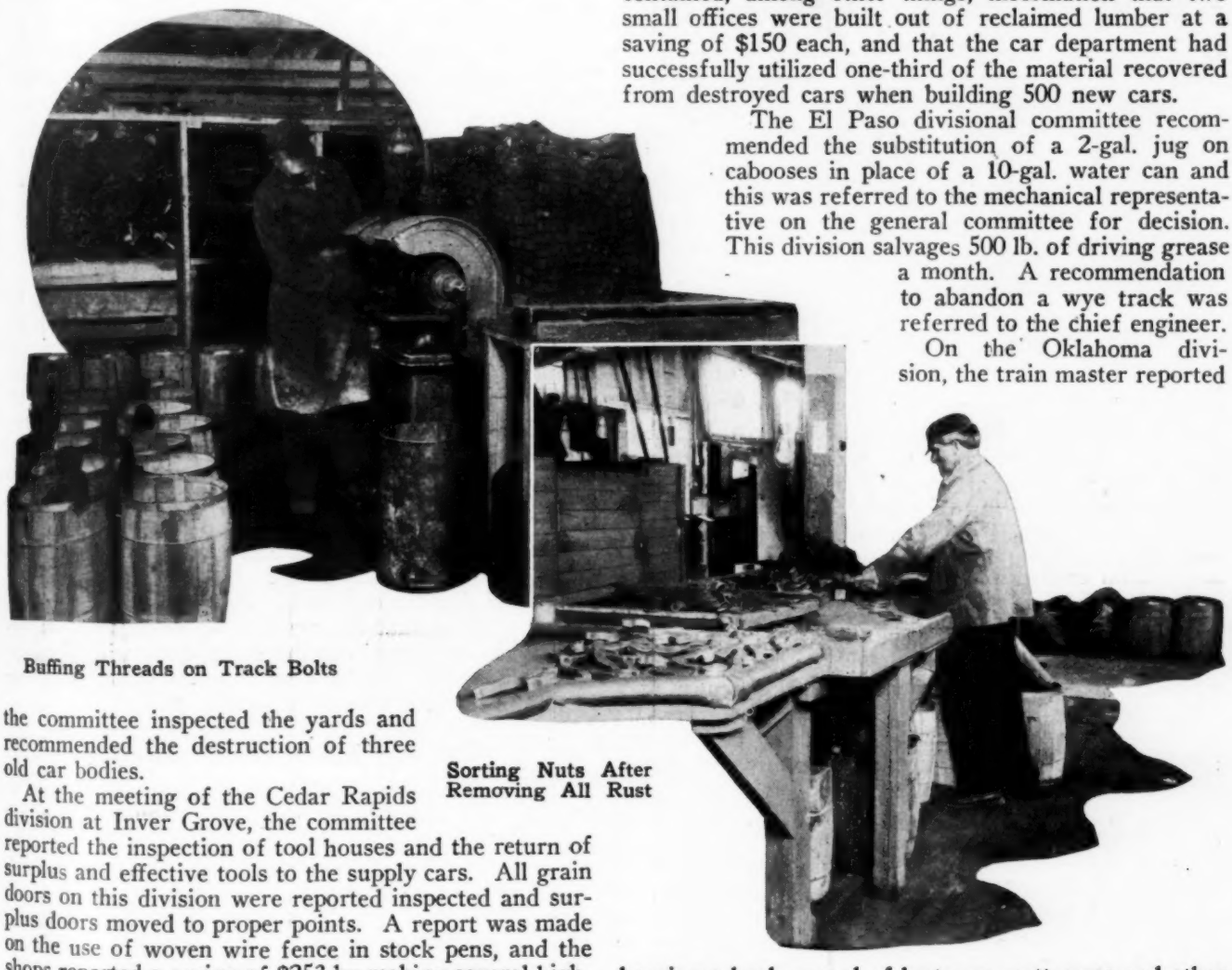
ery, the stationer addressing the meeting on the question of checking surplus and reporting the return of $1,100 worth of various items on the division to stationery stock. Another paragraph reported a discussion on the abuse of track shovels to determine the service being obtained from them. In another paragraph, various savings by reclamation were reported for the terminal for the three months previous; for example, $4,070 in lumber and $8,365 in metal roofing.

Stationery was also a subject at the meeting of the Illinois division committee. Complaints about track gages and levels made in the shops brought the an-

nouncement that these articles are now being purchased from manufacturers. The abuse of the tools by striking with spike mauls was reported and all section foremen were requested, through the minutes, to see that this was stopped. Persons complaining about repaired globe valves were requested to furnish samples to the reclamation plant and the latter was instructed to tighten up on valve inspection. The signal department reported a saving of $700 by repairing signal equipment. Attention was called to items now being purchased which might be made in the shops for less money and a request for a magnet crane for handling scrap track materials was referred to the engineering member of the general committee for investigation.

Destroy Old Buildings

At the Iowa division meeting, held at Oskaloosa, among other subjects, underground storage tanks for gasoline at section houses were recommended, and this was referred to the engineering member of the general committee. The chief fire inspector attended the meeting to revive interest in the careful handling of gasoline and explosives and to secure a more accurate reporting of fires. In keeping with the policy of retiring old buildings, which has been undertaken by this road, the committee inspected the yards and recommended the destruction of three old car bodies.



Buffing Threads on Track Bolts

Sorting Nuts After Removing All Rust

At the meeting of the Cedar Rapids division at Inver Grove, the committee reported the inspection of tool houses and the return of surplus and effective tools to the supply cars. All grain doors on this division were reported inspected and surplus doors moved to proper points. A report was made on the use of woven wire fence in stock pens, and the shops reported a saving of $253 by making several high-pressure pistons from low-pressure pistons. The division engineer promised to check up the use of lanterns on the division and the result of certain irregularities reported and a discussion of the material carried for draw bridges and water service resulted in the decision to scrap quantities of certain items and reduce the sizes of others.

The report of the Dakota division meeting contained the information, among other things, that engine scoops and shovels had been checked and a number returned to the stores, that two carloads of car sills had been reclaimed since the last meeting and turned over to the building department and that quantities of metal car roofing and siding recovered from destroyed cars, were being used in stock car repairs at a considerable saving over new material.

The Missouri division meeting found its stock out of line and considered ways and means of reducing its surplus on hand.

On the Colorado-Nebraska division, conditions advised the appointment by the divisional committee of special subcommittees at each of five different points, to clean up the terminals there. The report of excessive consumption of water hose on engines resulted in the recommendation to introduce a special joint which was referred to the mechanical member of the general committee for a decision; reports of trouble with car lubrication and a recommendation for a different grease were also put down for investigation.

The report of the St. Louis-Kansas City division contained, among other things, information that two small offices were built out of reclaimed lumber at a saving of $150 each, and that the car department had successfully utilized one-third of the material recovered from destroyed cars when building 500 new cars.

The El Paso divisional committee recommended the substitution of a 2-gal. jug on cabooses in place of a 10-gal. water can and this was referred to the mechanical representative on the general committee for decision. This division salvages 500 lb. of driving grease a month. A recommendation to abandon a wye track was referred to the chief engineer.

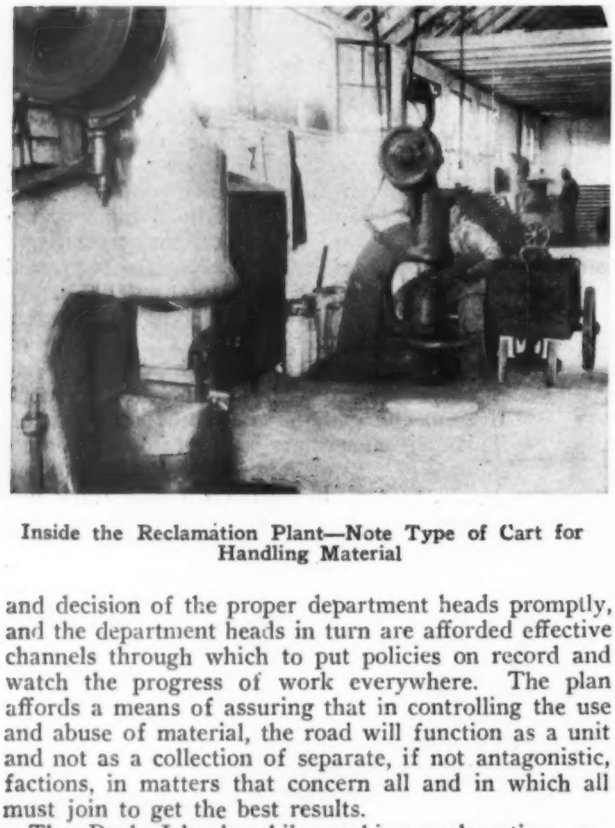
On the Oklahoma division, the train master reported keeping a book record of lanterns, mattresses and other caboose supplies and checking the amount used by trainmen, and it was announced that sufficient material was secured from scrap lumber to provide all the strips for crating melons last fall.

Another divisional committee reported an investiga-

tion on the loss of cuspidors for passenger coaches and the wrongful use of grain doors for building walks and yards. The unusually large number of scythes issued by the stores department on this division for the year was investigated and the question of establishing special terminal committees was considered.

Harmonious Settlement of Questions

Under this plan, the interests of reclamation and conservation are kept before the entire railroad, co-ordination is secured between the different departments on each division, each division is kept informed of the activities and accomplshments on other divisions, and there is a close and effective contact between points on the lines and headquarters. Where a division meets a problem or has a suggestion to offer for the betterment of conditions, it is assured of receiving the attention



Inside the Reclamation Plant—Note Type of Cart for Handling Material

and decision of the proper department heads promptly, and the department heads in turn are afforded effective channels through which to put policies on record and watch the progress of work everywhere. The plan affords a means of assuring that in controlling the use and abuse of material, the road will function as a unit and not as a collection of separate, if not antagonistic, factions, in matters that concern all and in which all must join to get the best results.

The Rock Island, while pushing reclamation, endeavors to test all suggestions and practices by ultimate economy, recognizing that departmental economies may often be something different. A clear distinction is drawn between reclamation and repairing and neither reclamation nor repairing is confined to any one department or location, but is done where and in the way that the reclamation committees decide the work can be done cheapest and best, considering the conditions in each case. Consistent with the recommendations of the Purchases and Stores Division of the A.R.A., reclamation on the Rock Island is defined as the bringing back to service materials that have been discarded by users as unsatisfactory for further service, a definition which includes the recovery of serviceable material from scrap piles, as well as the reforming of scrapped materials to serviceable articles, but not work which is obviously repairing. Thus, while some roads include in their reclamation figures, track tools, repairs to push cars, hand cars, jacks, lamps, tin ware, springs, warehouse and baggage trucks, etc., the Rock Island takes the position that such materials have not been discarded by users as unfit for further service, except temporarily while in need of repairs. The using department, having no facilities of its own to make repairs, sends such material to the store to have the work done, but the Rock Island has never considered such work as part of the reclamation savings, although the reclamation organization undertakes to see that this is properly done and the work conducted economically.

Favor Reclamation at Source

To meet the mechanical problems of reclamation, the Rock Island maintains a system reclamation plant at Silvis, Illinois, but the work is not all done there. The Rock Island is a believer in doing reclamation work locally wherever facilities are available to do it economically, for this saves the expense of hauling materials to the reclamation plant and back again and also reduces the amount of material necessary to supply requirements through the ability to repair material and return it to use.

All section tool houses are equipped with standard scrap bins and the maintenance of way scrap must be picked up from the right-of-way and brought to these bins. Any second hand material is recovered, as far as possible, and scrap cars are sent over the division by roadmasters periodically and shipped to the scrap dock at Silvis where a careful inspection is made of all cars received. If, as a result of these inspections, cars are found to contain material that should have been recovered at the source, a report is made and the shippers informed accordingly.

Mechanical Forces Co-operate

In connection with the mechanics of reclamation, the Rock Island plan is to have any work that can be done by laborers or unskilled workers, performed by forces employed by the stores department, but work requiring mechanics is done by the mechanical department, on the principle that the mechanical department organization is more competent to supervise this work than the stores department. In contrast with the practice on some roads, therefore, the main work of reclamation and the repair work which the supply department is called upon to provide are done in the blacksmith shop of the mechanical department. This is a brick building, 100 ft. wide and 475 ft. long and is located at the end of the scrap dock so that the material to be repaired can be taken to the shop from the scrap dock with the least possible expense for handling. Gantry cranes and tractors and trailer trucks assist in this work.

Building For Stores Department

Reclamation work which it is not practicable to do locally, and which the reclamation organization has determined can be done more economically or more satisfactorily by the stores department, is carried out in another building 24 ft. wide and 600 ft. long, located alongside of the scrap dock and operated by the stores department. Both buildings are well equipped with machinery, consisting of steam hammers, bulldozers, forging machines, air hammers, rattlers, electric and acetylene welding machines, bolt threading machines, nut tapping machines, shears, and this equipment is arranged so that any reclamation work begun in either the blacksmith shop or the reclamation plant can be carried

through to completion in that shop, thus reducing loss motion, expediting operations and facilitating the keeping of costs.

Included among the more important operations in the plant operated by the stores department, is the track bolt work. All track bolts received in scrap are inspected and those fit for further use are cleaned by a high speed revolving brush, the threads dipped in oil and nuts supplied, and the completed bolt packed in kegs for redistribution to the line. During 1927, the Rock Island reclaimed 1,009 kegs of track bolts at a saving of $5,034, the greater part of these bolts coming from rail relay work where one size of bolt was removed and replaced by another.

Side plates for switches are reclaimed by using a special die, this die reforming the riser on the plate, which is usually work down. The plates are then used for yard and side track use. During 1927, there were 150 sets of these plates reclaimed at a saving of $3,709.

The reclamation plant blacksmith shop handling reclamation work has a 6-in. forging machine, and scrap car axles are made into the next smaller size. These axles, after being forged, are rough turned. During 1927, 977 axles were reclaimed at a saving of $6,298.

Reclaim Cement

A feature of the operations at Silvis is the attention given to the reclaiming of cement. All empty cement bags received are rolled in a tumbler made of front-end netting enclosed in a wooden box which is revolved with power from an electric motor. This tumbling cleans the bags and the cement dust settles to the bottom of the box, from which it is shoveled into sacks. The cement is used for walkways, truckways, etc., around the plant. During 1927, 1,115 sacks of cement were reclaimed in this way at a saving of $467. The proper cleaning of the sacks also permits a better inspection of the empty bags and reduces the rejections from the cement manufacturers on sacks returned for credit.

Locomotive grease is reclaimed by special machines improvised for this purpose. The grease is squeezed through a perforated plate which will operate from five to ten minutes before it will stop up. The plate is then removed and the foreign substances accumulating behind it are scraped off with a knife. It is then replaced and the pressure again applied. Steam coils around the press keep the grease warm. This machine was installed in 1924, and up to January, 1928, it reclaimed 102,767 lb. of grease at an estimated saving of $15,413.

Following is a list of the more important salvage work done at Silvis, Ill., in a single representative month:

Material Reclaimed at Silvis, Month of May, 1928
Cost Records Kept

	Quantity	Saving
Heel block castings	92	$ 75
Guard rail wedge blocks	35	37
Slide plate braces	166	51
Guard rail clamps	17	52
Transit clips	9	7
Foot latches	233	124
Connecting rods	7	2
Gage plates	3	10
Guard rails	100	300
Angle bars	38,738 lb.	858
Track bolts	20 kegs	90
Rail joints	12	15
Steel tie plates	12,599 lb.	158
Track spikes	23 kegs	52
Rail joint springs	500	58
Post hole diggers	36	16
Track shovels	225	100
Boat spikes	6 kegs	21
Cement	61 sacks	22
Machine bolts	49,217 lb.	728
Common hex nuts	2 kegs	19
Grip nuts	7 kegs	90
Washers, punched	50 kegs	30
Washers, sorted	13 kegs	15
Bridge washers	224 lb.	8
Spring pads	56	9
Coil springs	89,000 lb.	850
Spring plates	130	62
Flues	45,315 lb.	1,799
Lead	5,540 lb.	69
Channel iron	3,180 lb.	33
Common iron	64,086 lb.	588
Staybolt iron	920 lb.	35
Locomotive forgings	1,382 lb.	73
Car forgings to store	57,961 lb.	1,333
Car forgings to shop	436 lb.	2
Grey iron locomotive castings	283 lb.	9
Steel locomotive castings	3,051 lb.	182
Driver brake shoes	1,742 lb.	38
Brake beams repaired	623	1,365
Oil boxes	229	1,176
Malleable car castings	18,219 lb.	1,411
Steel car castings	4,205 lb.	275
Couplers assembled	33	398
Coupler knuckles	132	372
Oil box lids	608	446
Coupler locks	120 lb.	19
Spring planks	103	412
Car brake shoes	21,179 lb.	219
Oil box wedges	102	40
Coupler yokes	21	45
Washout plugs	233 lb.	25
Air hose couplings	653	254
Air hose nipples	653	109
Blow-off cocks	19	9
Injector nozzles	525 lb.	136
Steam hose couplings	413	891
Steam hose nipples	413	254
Car axles	113	729
Coke forks	20	28
Mall, coal picks	6	3
Scoop shovels	65	33
Wrought pipe	315	21
Pipe valves	114	57
Dirt collectors	45	29
Switch slide plates, 100 lb.	525	607

All the work required of the store department to render materials and tools serviceable, is done on orders issued by the stores department to the reclamation plant or shop when the material to be reclaimed is needed and the cost of the work is maintained on each class of material. This is done by keeping a record of the quantity of weight of each item, the scrap value of the material reclaimed, the value of the material used in the reclaiming work, the labor cost, the cost of supervision and the charge for shop expense, and the savings represent the difference between the total cost on this basis and the cost of the material if it had been purchased new. Any items that do not show an individual profit in reclamation can thus be detected, an important feature in the operation of the plant, as too often the operations are based upon the entire work, overlooking the fact that concealed in the total figures may be work that is carried on at a loss.

* * *

On the Southern Pacific in New Mexico

Transcontinental Motor Coach Service Tested

Lack of adherence to schedules, poor equipment and discomfort found —Through travel between east and west fairly heavy

IN order to determine the sort of service that the transcontinental motor coach lines are providing, investigators recently made the trip from Chicago to Los Angeles, Cal., and return, using the two principal lines operating through service between those cities. These investigators were employed by the Trans-Continental Passenger Association, and their findings are embodied in a report to the association which has been made available for publication. For obvious reasons, the names of the lines covered in this investigation are omitted from this article.

The following comments on transcontinental motor coach service are taken from the report of one of the investigators:

Apparently the published schedule of four and one-half days between Chicago and Los Angeles is not regularly adhered to. One investigator on the westbound trip was enroute nearly eight full days, and the other investigator, five and one-half days. Eastbound, one investigator made the trip in a few hours less than six days, and the other in five days, after laying over of his own accord for 12 hours at one point. The two trips, eastbound and westbound, requiring the least time in transit were made over the same line.

In numerous instances, the equipment furnished is poor. As a rule, comfortable motor coaches are operated out of terminals, but passengers are frequently transferred at intermediate points to equipment of an inferior type. Through service between Chicago and St. Louis and California is a misnomer. In no cases are coaches starting from Chicago or St. Louis run through to the Pacific coast, but, as stated, frequent changes are made from one motor coach to another at intermediate points.

The coaches are crowded and more attention seems to be paid to local than to through travel. Apparently no attempt is made to regulate the heating of the coaches and frequent complaints are registered by passengers that the vehicles are either too hot or too cold.

Generally speaking, the roads are fair and in some places very good. In many instances, however, the coaches are operated over dirt roads, making the travel rough and uncomfortable. The roads are so rough in spots that it is impossible for the passengers in the motor coaches to sleep.

Restaurants and eating places recommended by drivers are usually third-class and passengers are forced to shift for themselves. Many restroom stops are made, but in the majority of cases the transportation company does not operate the restrooms and passengers are forced to use the facilities of hotels, garages, barber shops, etc. In some instances, even railroad stations are used. The investigators report that passengers are compelled to suffer indignities, in some cases, when using these restrooms, since the proprietors do not welcome the motor coach passengers.

In the coaches ridden by the investigators were a substantial number of through travelers. One of the investigators on the westbound journey reported one passenger each from Chicago to San Diego, Cal., and from Chicago to Phoenix, Ariz., and two from Kansas City, Mo., to California. Another investigator on the westbound journey reported a total of seven through passengers west of St. Louis, two of these going from Pittsburgh to Los Angeles, four from Philadelphia to Los Angeles and one from St. Louis to Los Angeles. West of Kansas City two passengers from Indianapolis to Los Angeles were added. Starting from Denver, this same investigator reported 15 through passengers, in addition to the nine already referred to, two of these being routed from Kansas City to Los Angeles, two from St. Paul to Los Angeles, one from Sioux City to Los Angeles, four from Denver to Los Angeles, one from Kansas City to Monterey, Cal., two from Indianapolis to Medford, Ore., and three from Sioux Falls to Albuquerque, N. M.

On an eastbound coach this same investigator, leaving Los Angeles, made the trip with one passenger for Chicago, one for Boise, Idaho, one for Denver, two for Salt Lake City, one for Provo, Utah, two for Beaver, Utah, one for St. George, Utah, and one for Baker, Cal. The other investigator on the eastbound trip reported three passengers from Los Angeles to Detroit, one to Minnesota via Cedar Rapids, two to Nashville, Tenn., three to Chicago, two to Freemont, Neb., five to Denver, one to Kansas City and one to Boston, a total of 18 through passengers.

Many Through Passengers

These statements show that on the two westbound trips there were 22 transcontinental passengers, and on the two eastbound trips 28 such passengers. This makes a total of 50 passengers, eastbound and westbound, for the four through motor coach schedules on one day.

As indicated above, some of these passengers cannot be classified accurately as transcontinental passengers using the highway services between Chicago and St. Louis, on the east, and California, on the west; but, assuming that the same conditions prevail eastbound as westbound—namely, that the motor coach fares from Los Angeles to intermediate points in Idaho, Colorado, Utah, etc., do not diminish in proportion to the shorter hauls—and averaging the fare paid by these 50 passengers at $40 (estimated), the total receipts would be $2,000 for 7,000 motor coach miles (estimated), or 28½ cents per motor coach miles. Furthermore, the reports indicate that the revenue derived from the intermediate traffic is greater than from through traffic. For example, a through line coach leaving Chicago carried 15 passengers to St. Louis, and an equal number from St. Louis to Kansas City, all of these passengers being local travelers between these points. It is considered, therefore, that the comparatively short haul

traffic handled in the through line motor coaches must be depended upon to yield sufficient revenue to support the through operations.

Conversations of the investigators with passengers elicited the fact that none had previously made the transcontinental trip by motor coach, and virtually all stated that, owing to the hardships they had encountered, they would never repeat the experience.

While through line service is scheduled between Chicago and St. Louis and California, without layover, the experience of all of the investigators indicated that through trips, traveling night and day, are too great a physical strain, and that it is necessary to lay over at least one night to secure much-needed rest. In other cases in which the motor coaches are not operated on schedule, connections are frequently missed, compelling passengers to stop over for the night and pay their own hotel expenses.

The reports are uniform in indicating that passengers using the motor coaches are almost invariably of a type that would not use Pullman service. Doubt is also entertained that many of them could afford to pay the present rail rates. All of the investigators were impressed with the idea that practically all of those encountered on the motor coaches used them on account of lack of funds and the necessity of making the trip at the lowest possible cost.

One peculiar feature of the motor coach fares is that they are higher westbound than eastbound, and are particularly low where competition is severe. For example, on the window of a motor coach office at Tulsa, Okla., the following rates were advertised: St. Louis, $10; Kansas City, $6; San Diego, Cal., $42; Los Angeles, Cal., $42; and San Francisco, $47. One investigator reported that as he proceeded west, the rates to California points diminished only slightly.

Experiences of Investigators

One investigator left Chicago at 9 a. m., on November 1, having purchased a ticket to Los Angeles, routed via St. Louis, Kansas City and Denver, the rate being $50. He found that there is no motor coach route to the coast via Omaha. All of the transcontinental lines from Chicago to Los Angeles are routed via St. Louis and Kansas City. A motor coach of 26-passengers capacity, with a baggage compartment on the roof, was provided for the trip out of Chicago. According to the investigator, this coach was rather worn and in poor condition. Fifteen passengers were picked up in Chicago and vicinity.

Owing to engine trouble, Effingham, Ill., was not reached until 6:30 p. m., and the coach remained there until 10 p. m., trying to get repairs for the engine. There was also some difficulty with the air brakes. At 11 p. m., a repair car from St. Louis reached the disabled coach, and after further delay it proceeded, reaching St. Louis at 1:30 a. m., on November 2, 4 hours and 40 minutes late.

The investigator found that there was no coach available to Kansas City until 9 a. m. When he asked the agent if any refund was made to passengers who were compelled by delays to pay hotel expenses, he was told that no such refunds were made. At St. Louis one passenger routed to Tulsa decided to abandon the motor coach and resumed his journey by train.

The coach to Kansas City was scheduled to leave at 9 a. m. but was held until 10 a. m. for the arrival of late connections. The equipment in service between St. Louis and Kansas City was found to be excellent, all of the coaches being new, having reclining chairs for 27 passengers, a lavatory and wash basin. Drinking water was also provided, and hand baggage was carried in baggage racks on the inside of the coach.

Leaving St. Louis, the coach carried 27 adults and two children. Only one passenger was booked through to Oakland, Cal., the remainder being routed to Kansas City and local points between St. Louis and Kansas City. Local passengers were picked up all along the way and at times the coach carried as many as 35 passengers, the overflow being accommodated on small camp stools which were placed in the aisle of the car. Three of the passengers were Mexican workmen and one a negro. The ride was very uncomfortable, owing to the crowd. Kansas City was reached at 8:45 p. m., two hours and five minutes late, and the investigator found that there was no motor coach to Denver until 9 a. m. the following morning. According to the investigator, the motor coach business between St. Louis and Kansas City is very heavy and the best equipment is provided. The company seems more concerned in picking up local business than in accommodating the through business satisfactorily; hence, schedules are not adhered to. Almost every oil station enroute was found to be a ticket agency for one of the highway lines.

Coaches Run Late

After waiting at the motor coach station in Kansas City from 8:30 a. m. to 3 p. m., the investigator was advised that there would be no coaches to Denver on that day. He found that it was almost impossible to secure authentic information as to the arrival and departure of the coaches. The coaches used between Kansas City and Denver were found to be small 20-seat equipment, which the agent admitted to be the poorest on the entire line. One woman passenger who had arrived in Kansas City at 2:30 p. m. on November 3, 32½ hours late, told the investigator that she had come via El Paso and Tulsa, and that the road had been so bad that the coach company carried the passengers by rail between Amarillo and Oklahoma City. The coach in which she was riding developed engine trouble some 60 miles west of Kansas City, and the passengers were brought in by small relief coaches.

On account of the fact that the road was not open between Kansas City and Denver, this investigator changed the routing of his ticket to go via the southern route, the next departure of a coach on this route being at 7:15 a. m. the following morning, November 4. He found that the drivers of the coaches are paid on a mileage basis, with a scale of from three to four cents per mile, and that they make from $10 to $15 per day.

Plenty of Trouble

The coach was due to leave Kansas City at 7:15 a. m. on November 4, but did not depart until 8 a. m. It was not the regular coach, but an old, dilapidated car seating 18 passengers. The baggage was placed on top and was uncovered. The passengers were told that the coach went only as far as Miami, Okla., where connection would be made with the regular coach to the west at 2 p. m. The coach carried eight passengers for points between Fort Scott, Kan., and Los Angeles. Frequent stops were made along the way to permit the driver to work on the engine, he explaining that the coach had come into Kansas City at 2 a. m. and had been sent out again without any inspection. The inside

of the coach was smoky and the fumes from the exhaust were so strong that nearly all of the passengers were in discomfort.

All of the passengers complained regarding the equipment, and one passenger said that the service on the line was better four years ago than at the present time. Upon being asked by the investigator why he took the motor coach instead of a train, the passenger replied that the railroad fare was $27, while the motor coach fare was $10.

Miami, Okla., was reached at 4:45 p. m., three and one-half hours after the scheduled time, and it was found that no coach for the west was available until 10:20 p. m. At 10 p. m., the passengers were told that the coach would arrive at 11:30 p. m., which it did, but on account of tire trouble it did not leave Miami until 12:45 a. m.

Out of Miami, so-called "through" equipment was provided, having 27 seats but no lavatory. Baggage was carried on the top and was covered by canvas. Twenty-seven passengers, including five small children, two colored women and three colored men, were in this coach. Of the 27, six were routed to Pacific coast points. The investigator criticized the equipment as being old and stated that the ventilation and air were bad, and the seats narrow and uncomfortable.

Equipment Gets Worse

Tulsa was reached at 3:45 a. m. on November 5, and the passengers were compelled to change from this coach to another. After an hour's delay, a small 12-seat coach with single rear wheels was provided. Again the excuse was made that the regular coach had not come in and that this was emergency equipment. A promise was made that the passengers would find another good motor coach at Oklahoma City. The coach provided at Tulsa did not even have window panes, but had window shades in which mica had been inserted. The seats were narrow and crowded and several passengers refused to ride in this equipment, preferring to wait until until 7 a. m. for a local coach to Oklahoma City. Ten passengers were taken from Tulsa, including five booked to California points and five to Oklahoma City.

The coach left Tulsa at 4:40 a. m. for a ride which the investigator described as the roughest he had ever had. Sleep was impossible, not so much on account of the road conditions, but because of the coach itself, which shook and trembled all the way and was cold and uncomfortable. Oklahoma City was reached at 10:30 a. m. on November 5, and the passengers were told that the coach leaving at 7:30 a. m. had not been held but that another coach would leave at 1 p. m.

On account of the necessity of reaching Los Angeles as soon as possible the investigator temporarily abandoned the highway journey at this point and proceeded to El Paso, Texas, by train. He arrived at El Paso on November 7 to find that the 10 a. m. motor coach westbound had been discontinued and that the daily coach left at 2 p. m. At Tulsa and Oklahoma City and at other points along the route, the agents had all told the investigator that the through coach left El Paso at 10 a. m. The investigator considers this one of the chief difficulties of travel by motor coach, i.e., the agents knowing little about the schedules. He contends that the agents promise everything or anything to sell a ticket. The El Paso agent of the company stated that November 6 was the first day in two weeks in which the coaches from the east had arrived on time.

The investigator finally left El Paso at 2 p. m. in a 30-passenger coach fitted with six rows of seats, two seats on one side of the aisle and three seats on the other. The seats were leather-covered and narrow, and had a slight recline and only a small space was left between the rows. The seats were not assigned to passengers, except that the last rows were generally supposed to be reserved for negroes, Mexican laborers and orientals, but this rule is not strictly followed. Smoking was supposed to be permitted only in the three last rows of seats, but no attention was paid to this rule.

Leaving El Paso, 27 passengers were carried, and also a considerable amount of baggage on the top, covered with canvas. All of the passengers were routed to Arizona and California points. A stop of 30 minutes was made for supper, but the restaurant to which the passengers were taken by the driver was so dirty that only two passengers ate there. The rest of them sought other eating places. The investigator found that most of the passengers buy sandwiches and coffee at every rest stop and that few regular meals are eaten.

Sixty miles west of El Paso, the westbound motor coach, which had left El Paso at 8 a. m., was overtaken. It had been tied up at this point since 9:40 a. m., on account of engine trouble. Among its 14 passengers the investigator found 6 who had left Chicago with him on November 1. Four passengers from Fort Worth made the complaint that nearly all passengers make, i.e., good equipment was furnished out of Fort Worth for some 50 miles, after which the passengers were forced to change to an old, uncomfortable coach. Twelve of the stranded passengers were loaded into the already well-filled coach in which the investigator was riding and were taken to Deming, N. M., where they were forced to wait until their own coach had been repaired.

The investigator left Douglas, Ariz., in a coach containing 20 passengers and arrived at Tucson at 3:40 a. m., later continuing to Phoenix where he arrived at 8 a. m. on November 8.

Los Angeles Reached at Last

Coaches were changed at Phoenix, which point was left at 9 a. m., the coach carrying 32 passengers. After an unpleasant journey, owing to the crowded coach, the condition of the road, which was dusty, and the vibration inside the bus, the coach arrived at Gila Bend at 11:45 a. m., where a stop was made at the rear of the Southern Pacific passenger station for tire repairs. The passengers in the broken down coach previously referred to caught up with the other party at Yuma and said that they had been furnished an old 16-seat coach without windows at Phoenix. They said that the coach rattled to such an extent that they could hardly hold their seats. El Centro, Cal., was reached at 4:10 p. m., two hours late, owing to baggage examination by the U. S. Department of Agriculture at the California state line, and also on account of a second tire blowout. After the passengers had changed to another coach, El Centro was left at 5:20 p.m. the coach carrying 30 passengers which crowded every seat. After leaving El Centro, the coach made all local stops, and Los Angeles was not reached until 12:30 a. m. The trip from El Paso to Los Angeles required 36 hours, the distance being 1,002 miles.

The second investigator who took the other principal through motor coach route between Chicago and Los Angeles was enroute 130 hours. After purchasing a

ticket at Chicago routed via St. Louis, Kansas City, Denver, Gallup and Needles, he left Chicago at 8:15 a. m. on October 31. The trip to St. Louis was without incident, the coach arriving at St. Louis on time at 8 p. m. This investigator was the only coast passenger carried. The investigator reported that this part of the trip was enjoyable. Leaving St. Louis at 8:15 p. m. the same day this investigator arrived at Kansas City the following morning at 5:16 a. m., the coach being on time. Between St. Louis and Kansas City, the coach carried two passengers routed from Pittsburgh to Los Angeles, four from Philadelphia to Los Angeles, one from St. Louis to Los Angeles, and a number of local passengers. Complaint was made that the coach was uncomfortable, being either too warm or too cold, and that smoking was permitted in any part of the coach, which was disagreeable to some of the passengers. The baggage was unloaded at Kansas City in the rain and was found to have been mashed, rubbed and scarred by the rough handling enroute.

An old coach seating 16 passengers was furnished for the trip between Kansas City and Denver, departure being made at 8 a. m. on November 1. In addition to the through passengers previously mentioned, this coach carried one passenger from Kansas City to Denver and two from Indianapolis to Los Angeles. The road through Kansas was muddy and slippery, and for a considerable part of the distance no chains were on the tires. As a result of the road conditions, the coach fell farther and farther behind its schedule. Near Ellsworth, Kan., an eastbound coach of the same company was found with the engine out of order, and the passengers and baggage from this coach were transferred to the westbound coach and carried back to Ellsworth. Ellsworth was reached at 10:15 p. m., 5 hours and 30 minutes late. Two passengers left the coach at this point to board a train for Denver on account of the bad weather and the road conditions.

On arriving at Kanorado, Kan., at 8 a. m. on November 2, the coach overtook three coaches of its own and other lines, which had been tied up for 24 hours in a snowdrift. A passenger in one of these coaches had contracted pneumonia and another had frozen his feet. All four coaches departed from Kanorado at 10:30 a. m., and by helping each other through the snow, with the aid of the passengers, reached Flagler, Colo., at 6 p. m. One of the coaches broke down at this point and its passengers and baggage were transferred to the others. Denver was reached at 12:30 a. m. November 3 and the passengers were told that no coach would leave for the coast until 8 a. m.

Leaving Denver at 8 a. m. November 3, the investigator accompanied, in addition to the through passengers mentioned before, two passengers from Kansas City to Los Angeles, two from St. Paul to Los Angeles, one from Sioux City, Ia., to Los Angeles, four from Denver to Los Angeles, one from Kansas City to Monterey, two from Indianapolis to Medford, Ore., and three from Sioux Falls, S. D., to Albuquerque, N. M. The remainder of the trip to Los Angeles was almost devoid of incident, the various coaches ridden in by the investigator keeping fairly consistently to their schedules. The investigator reached Los Angeles at 6:30 p. m. on November 5.

Commenting on his journey, this investigator stated that several passengers said that they would never again undertake a cross country trip in a motor coach. With the exception of the equipment between Kansas City and Denver, all the equipment was found to be large and new, fitted with reclining chairs. The trip through Kansas, on account of the bad roads, snowdrifts and freezing weather, was one of considerable hardship. The comment was made that through passengers were given no more consideration than local passengers.

The second investigator left Los Angeles on the return trip, via the coach line other than that which he had used westbound, at 7 p. m. on November 10. His return trip was less eventful than his westbound trip had been, except for delays at Salt Lake City and Kansas City on account of missing connections. The rest-room facilities furnished by the coach line were severely criticized by this investigator, who stated that passengers on many occasions were forced into disagreeable situations. This coach reached Salt Lake City at 1 a. m. on November 12, and passengers were compelled to remain over night to await the next coach leaving Salt Lake City eastbound at 8 a. m. Denver was reached at 2:10 p. m. November 13 after which the journey was resumed at 4 p. m. Antiquated equipment was furnished out of Denver, with seats for 22 passengers and with no windows other than curtains into which mica had been inserted. Four through passengers, after seeing this coach, decided to wait over night for the next one. After the coach skidded into a ditch near Oxford, Neb., at 6 a. m., there was considerable delay in securing relief equipment. A small 16-passenger coach was furnished out of Oxford, the driver pushing it to the limit to make up time. Between Franklin and Red Cloud, this coach collided with an automobile and went into the ditch. It was kept from turning over by a high bank on the far side of this ditch. At length the coach was extricated and the journey to Red Cloud resumed. Between St. Joseph and Kansas City, the driver nearly fell asleep on several occasions, and the investigator commented that this was the most dangerous ride he had ever taken in an automobile of any kind. Kansas City was reached at 4 a. m. on November 15 and the investigator was forced to remain at that point until 9 a. m. to catch the next coach to St. Louis. At Kansas City a new ticket was issued to the investigator, this being the third time that this had been done, other tickets having been issued in place of the one he purchased at Los Angeles, at Salt Lake City and Denver. The trip between Kansas City, St. Louis and Chicago was uneventful and the investigator reached his destination at 10:10 a. m. on November 16.

Commenting on the eastbound trip, this investigator said that the passengers had complained of service and treatment accorded them during the journey. Two of the drivers were attentive to the comforts of passengers but most of them were discourteous. The eating places recommended by the drivers were not good. There seemed to be some arrangement by which the drivers, in return for recommending certain eating houses to their passengers, were furnished free meals.

By inquiring of various passengers, this investigator secured the following list of rates for motor coach transportation: Los Angeles to Chicago, $50; Los Angeles to Boise, Idaho, $29.50; Los Angeles to Denver, $28.50; Los Angeles to Salt Lake City, $17.50; Las Vegas, Nev., to Salt Lake City, $12; Los Angeles to Beaver, Utah, $13.35; San Francisco to Chicago, $53; San Francisco to Buffalo, N. Y., $65.50; and San Francisco to Des Moines, Ia., $48.50.

The first investigator had had enough of transcontinental motor coach travel on his westbound trip and he returned to Chicago by train, employing another man at Los Angeles to make the trip to Chicago on the

motor coaches of the line ridden west-bound by the second investigator. The third investigator left Los Angeles at 8:05 p. m. in a coach carrying three passengers from Los Angeles to Detroit, one to a Minnesota point, two to Nashville, Tenn., three to Chicago, two to Fremont, Neb., five to Denver, one to Kansas City and one to Boston. This investigator had an uneventful trip all the way to Chicago, arriving there at 7 p. m. on November 17. This trip was made via Albuquerque, Denver, Omaha and Marshalltown, Ia., the trip requiring five days and five nights. Apparently he would have reached Chicago in four and one-half days, if he had not laid over at Santa Fe, N. M., of his own accord for 12 hours.

This investigator commented favorably upon the equipment furnished, except that between Denver and Omaha. Most of the passengers he found to be using the motor coaches to save money. The eating places at which the coaches stopped were criticized, although the comment was made that the prices of meals were low and that they were probably satisfactory, therefore, to the class of people carried in the coaches. The usual comment was made that the coaches were rarely comfortable in temperature, but the drivers were found to be courteous and efficient, and the morale of the employees seemed to be good.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading during the week ended January 26 amounted to 926,188 cars, an increase of 23,524 cars as compared with loading in the corresponding week of 1928 and a decrease of 17,691 cars as compared with 1927. Coal loading totaled 209,453 cars, an increase of 33,299 cars over last year's total but a decrease of 15,239 cars from the total in the corresponding week of 1927. Loading in the Southern and Northwestern districts was smaller during the week than a year ago. The summary as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading
Week Ended January 26, 1929

Districts	1929	1928	1927
Eastern	216,007	200,690	215,204
Allegheny	188,707	177,145	191,253
Pocahontas	58,957	51,711	58,743
Southern	144,772	145,944	154,203
Northwestern	102,070	114,612	114,332
Central Western	138,661	138,117	138,977
Southwestern	77,014	74,445	71,167
Total Western Districts	317,745	327,174	324,476
Total All Roads	926,188	902,664	943,879
Commodities			
Grain and Grain Products	47,938	53,310	46,394
Live Stock	26,836	32,726	31,237
Coal	209,453	176,154	224,692
Coke	12,652	10,989	12,759
Forest Products	59,839	66,081	65,205
Ore	8,567	7,846	10,457
Mdse. L.C.L.	240,826	244,635	245,169
Miscellaneous	320,077	210,923	307,966
January 26	926,188	902,664	943,879
January 19	931,880	884,683	936,160
January 12	914,187	907,301	942,731
January 5	798,723	754,247	933,890
December 29	.....	667,586	680,554
Cumulative total, 4 weeks	3,570,978	3,448,895	3,756,660

The freight car surplus averaged 323,125 cars during the period ended January 23 as compared with 375,980 cars on January 15. The total included 162,012 box cars, 112,392 coal cars, 24,107 stock cars and 11,948 refrigerator cars.

Car Loading in Canada

Revenue car loading at stations in Canada for the week ended January 26 totalled 59,415 cars, an increase over the previous week of 1,240 cars, and a decrease of 2,494 cars from the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
January 26, 1929	59,415	41,420
January 19, 1929	58,175	39,556
January 12, 1929	57,087	36,311
January 28, 1928	61,909	37,162
Cumulative Totals for Canada		
January 26, 1929	220,869	148,294
January 28, 1928	243,235	139,509
January 29, 1927	233,777	138,087

The decrease in the grain shipments in the western division for the first four weeks of the year was affected by the much earlier harvest last Autumn than in 1927 and subsequent slower marketing. From September 1, 1928, to October 27, 155,046 cars were loaded, an increase of 56,410 cars over the same period in 1927, but from October 27 to December 29 the increase was only 20,525 cars and for the first four weeks of this year the loadings were lighter by 18,033 cars. The elevators, however, show not only a much greater quantity in store, but, despite the increases in capacity, there is a larger percentage of the total space filled with grain. The western country elevators increased their capacities by over 22,500,000 bushels and on January 25 had 48 per cent of the space occupied as against 37 per cent a year ago. The Pacific coast elevators and those at the head of the lakes with increased capacities also show larger stocks on hand, both in actual quantities and in respect to total capacities. Grain shipments in the eastern division were heavier than in 1928 by 2,901 cars, making the total for both divisions less by 15,132 cars.

Live stock was down by 1,113 cars, both divisions showing decreases. Coal was lighter in the western division by 3,619 cars and by 123 cars in the east. Coke showed increases in both divisions, lumber was slightly lighter, but pulpwood showed decreases of 4,515 cars in the east and 3,459 cars in the west, the more or less unsettled conditions of the paper industry undoubtedly being the main factor although pulp and paper shipments were heavier than in 1928 by 1,407 cars. Other forest products showed a decrease of 1,399 cars and ore an increase of 345 cars. Merchandise about held its own, showing a decrease in the eastern division of 328 cars, but an increase in the west of 124 cars. Miscellaneous freight has been heavier each of the four weeks in both divisions, the total being heavier than in 1928 by 4,931 cars.

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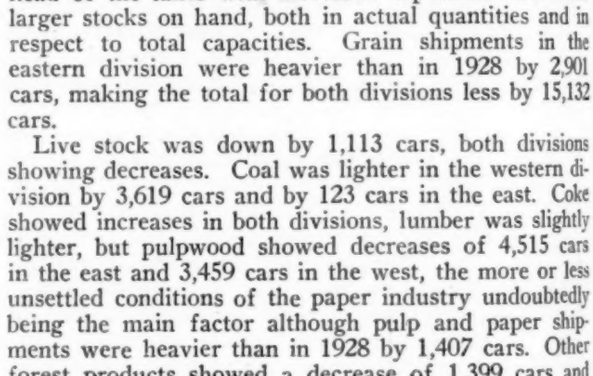


On the Central Vermont at Georgia, Vt.

Northern Pacific All-Steel Dynamometer Car Built at Como Shops, St. Paul, Minn.

Northern Pacific Builds New Dynamometer Car

Unusually large and complete living quarters and working facilities provided—Car measures drawbar pull up to 250,000 lb.

EARLY in 1928, the Northern Pacific ordered a four-cylinder single-expansion locomotive developing a maximum tractive force of 153,400 lb., and it was realized that in order to test this, as well as other large locomotives, the dynamometer car then used by the Northern Pacific, with a maximum capacity of 60,000 lb., would be entirely inadequate. Accordingly, plans were initiated to design and construct a modern dynamometer car of the required capacity. As a result of experience with the previous car, it was decided that the living accommodations in the new car must be made as large and complete as possible, that a large work room should be provided, and also a large, clear-vision cupola for the chronograph table and gages.

The new-all-steel Northern Pacific dynamometer car, No. 276, which was built in Como shops, St. Paul, has a capacity to measure drawbar pull up to 250,000 lb. and buff up to 1,250,000 lb. The car is 9 ft. 3⅜ in. wide by 70 ft. long inside and weighs 168,600 lb. This is believed to be the largest dynamometer car in the world. The car has a built-up steel underframe with fish belly center sills 28 in. deep. Six-wheel Commonwealth cast steel trucks are used with 36-in. solid steel wheels. All wheels are equipped with clasp brakes, except the rear pair of the front truck from axle of which the paper drive is taken.

The car body is of steel, well insulated and lined with tongue and groove sheathing. The car proper has a tongue and groove wood floor, all of which is covered with green and red checkered rubber tile, except the kitchen, heater room and shower. The outside is painted Pullman green, and the inside, with the exception of the kitchen, shower, heater room and space in front of the cupola, has side walls in old ivory enamel and the ceiling and lower deck in pearl gray.

Living Accommodations for Crew

The space provided for living quarters for the crew occupies 34 ft. 7 in. of the 70-ft. car and consists of a kitchen, porter's room, operator's stateroom, clothes lockers, two berth sections, shower and lavatory.

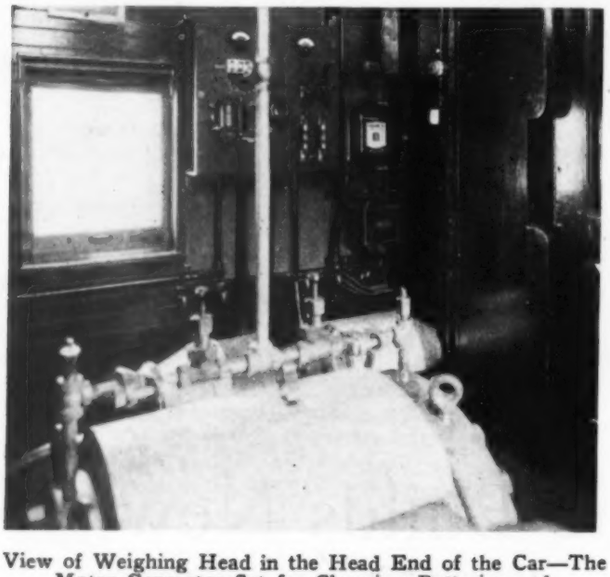
At the rear of the car is the kitchen, 7 ft. 2⅜ in. wide and 7 ft. 3 in. long. The floor is of copper, covered with wood floor racks. The ceiling, lower deck and side walls are painted with a pale green enamel. The kitchen is equipped with a No. 18 Commander range, metal-lined coal box, Monel metal work table, Monel metal sink, large refrigerator, motor-driven exhaust fan and the usual cupboards for dishes and cooking utensils. Suspended from the ceiling in the kitchen are two copper gravity water tanks with a capacity of 126 gal. and connection to a hot water coil in the range. Two 8-in. by 24-in. windows in the side of the car and one 7-in. by 25½-in. deck window provide excellent daylight and there are the usual ceiling and wall electric lights.

A passageway 2 ft. 1 in. wide, with flat ceiling, extends along the right side of the car from the rear to the transverse aisle at the berth sections. Door openings lead from this longitudinal passageway to the kitchen, the porter's room and the operator's stateroom.

The porter's room is next to the kitchen. There is a serving door with drop leaf shelf in the partition between the kitchen and porter's room, to facilitate handling of food to the dining room. The room is

equipped with an upper and lower berth, clothes locker, folding washstand with mirror above, enclosed hopper and a 9-in. electric fan.

Adjacent to the porter's room is the operator's stateroom, equipped with an upper and lower berth, large



View of Weighing Head in the Head End of the Car—The Motor Generator Set for Charging Batteries and Charging Panel are in the Far Corner

clothes locker, flat-top desk with cabinet above, chair, folding washstand with cabinet and mirror above, an enclosed hopper and a 9-in. electric fan. In addition to serving as a bedroom, this is used by the operator as an office for working up reports and handling correspondence.

In the passageway between the porter's room and the operator's stateroom is a swinging door which serves to keep kitchen odors from getting into the main body of the car. The longitudinal passageway terminates in a transverse passage 2 ft. 2 in. wide. Built against the stateroom and facing the transverse aisle are four built-in individual clothes lockers with chest of drawers below. These lockers and drawers provide excellent space for the clothing of the crew.

Two Pullman sections located next to the transverse aisle furnish sleeping accommodations for the assistants. By the use of removable tables, this space is also utilized as a dining room during the day.

On the left side of the car next to the Pullman section is the shower room and a wash stand. The shower room has Monel metal walls and a copper floor with wood floor rack and is supplied with hot and cold water. Across the car from the shower and wash room is the toilet, which contains a wash stand, with cabinet and mirror above and a Duner hopper. There is a hinged door in the partition between the Pullman sections and the front of the car. A galvanized Geisel water cooler is readily accessible from the aisle between the shower room and the toilet.

Heating and Lighting Equipment

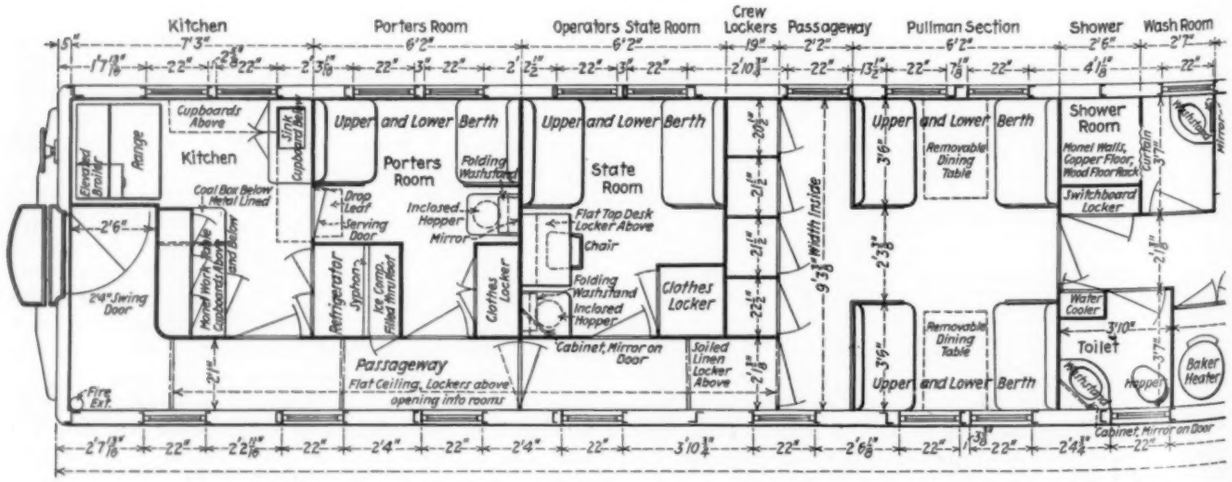
On the right side of the car next to the toilet is the heater room, lined with galvanized iron. A Baker hot water heater generates heat for the entire car, a No. I International laundry hot-water heater providing hot water for washing purposes.

A Safety 4-kw., 32-volt axle generator is belt-driven from the rear truck. The battery equipment consists of a 600-amp.-hr., 32-volt Exide storage battery mounted in battery boxes underneath the car. In view of the fact that the dynamometer car operates mostly in freight service, the axle generator has been arranged to cut in when a car speed of 7½ miles an hour is attained. All rooms have been amply supplied with electric lights with suitable control switches. Mounted on each side sill under the cupola is an adjustable electric light with reflector, and with the switches in the cupola, for locating mile posts at night.

Since the car may be at terminals and outlying points for several days at a time, where no facilities for charging storage batteries are available, a motor-driven generator is installed in the front left hand side of the car. This consists of a Westinghouse Type AR, single-phase, 110-volt, 60-cycle motor, operating at 1,750 r.p.m. and direct connected to a 3-kw., 40-volt, Type-SK, d.c. generator, with suitable starting compensator and charging panel. This unit operates on either 110- or 220-volt alternating current.

Cupola

Six feet from the front of the car is the cupola. The space below the floor is totally enclosed, a door being provided at the head end and a trap door above in the floor of the cupola. This provides excellent space for storing paper and miscellaneous supplies. The ceiling of the side aisle passageway extends up into the cupola and is covered with cushions to provide seating



accommodations for visitors. A bench at the left of the cupola door and chairs furnish additional seating capacity. Beneath the cupola are four cupboards on the aisle side with doors opening from the aisle. Excellent natural illumination of the cupola is provided by one stationary and two sliding windows in each side of the car. In order to see stations and mile posts in inclement weather, a portable storm hood has been built, which fits into the opening of the sliding window on either side. This hood has glass at the front and rear and thus affords a good view both forward and backward. In the cupola are located the chronograph tables, gages, etc.

Work Room

The work room in this car extends from the wash room forward to the cupola and has a total length of 17 ft. 5 in. On the left side of the car, just ahead of the wash room, is a 3-ft. by 10-ft. oak work table with winding rolls at each end for handling the rolls of paper. Under the table at each end is a tier of drawers, useful for storing data, gages, planimeters, etc. Above the work table at one end is an overhead berth for emergency use. On the opposite side of the car are built-in trunk and baggage, linen, clothes and steel overall lockers. This work room is unusually large, and the arrangement has been carefully developed so that the working up of data and reports may be handled expeditiously and with a minimum interference.

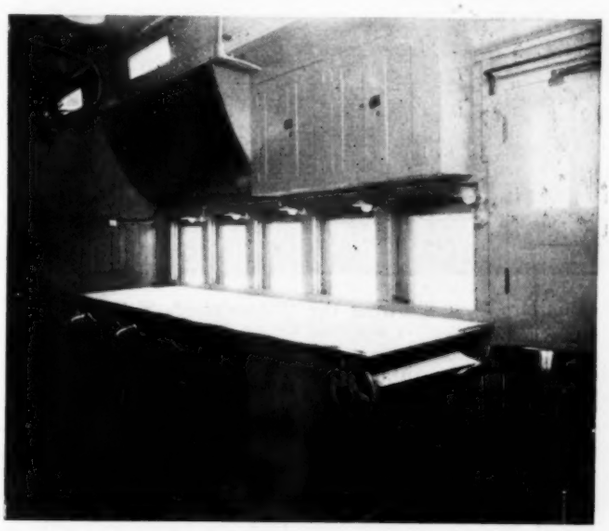
Dynamometer Equipment

The complete dynamometer equipment, consisting of the weighing head, axle drive for the paper, chronograph table, speed recorder, integrator, electric clock, gages, etc., were purchased as a unit from the Baldwin Locomotive Works. The weighing head is located on the main floor of the car, on the center line, just ahead of the cupola, where it is rigidly bolted to the car underframe. The weighing head is of the diaphragm type with the drawbar-pull piston at the rear and the buff piston at the front. The effective area of the drawbar-pull piston is 100 sq. in. and of the buff piston 200 sq. in.

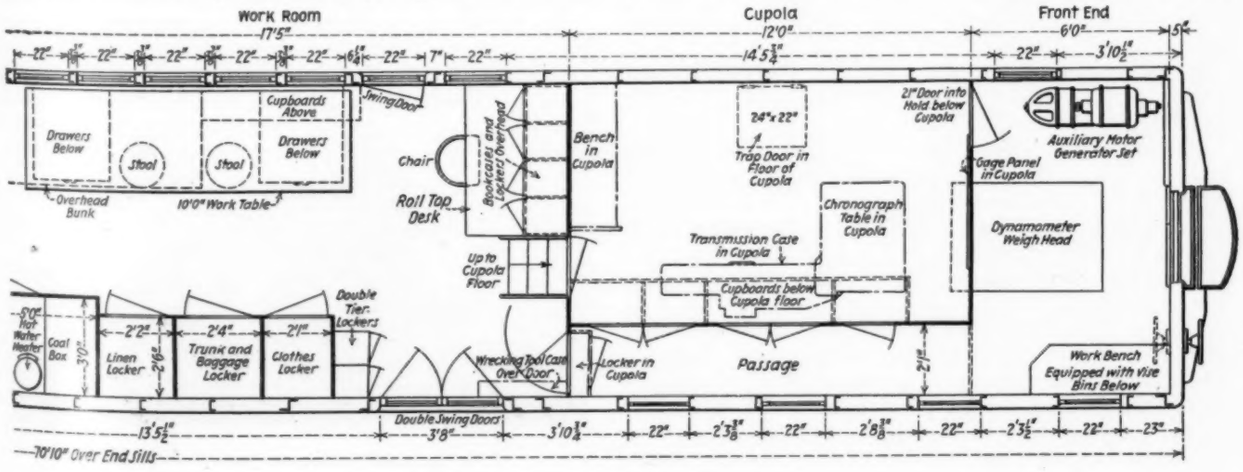
The paper drive is taken from the rear axle of the front truck through spiral gearing and a vertical shaft extending up to the speed change box on the floor of the cupola. A square jaw clutch in the axle gear case, which is controlled from the cupola, engages or disengages the paper drive. By means of the speed-change box in the cupola, three paper speeds can be obtained from the axle drive, i. e., 3.30 in., 13.20 in., and 52.80 in. per minute of car travel. The intermediate speed of 13.20 in. per minute is found to be most practical for ordinary work. The motor in the cupola used in connection with the speed recorder and indicator drive can also be used for paper drive in case it is desired to take records of some events when the car is not in motion, or drive the paper at a definite number of inches per minute instead of per mile of car travel. The three paper speeds from the motor drive are at the rate of 3¾ in., 15 in. and 60 in. per minute. A small lever at the right of the operator's chair provides for neutral position, motor drive of the paper or axle drive of the paper. For general work, the axle drive at a fixed paper travel per car mile is the most convenient and practical.

Events Recorded by Pens

The bridge bars spanning the table carry supports for 22 recording pens. The events recorded by these pens in consecutive order from the left to the right of the paper are as follows: six second intervals, brake-cylinder pressure, right water meter, left water meter, brake pipe pressure, front air pump, back air pump, steam pressure, coal or oil meter, feedwater pump, back pressure, locomotive indicator, integrator, drawbar pull,

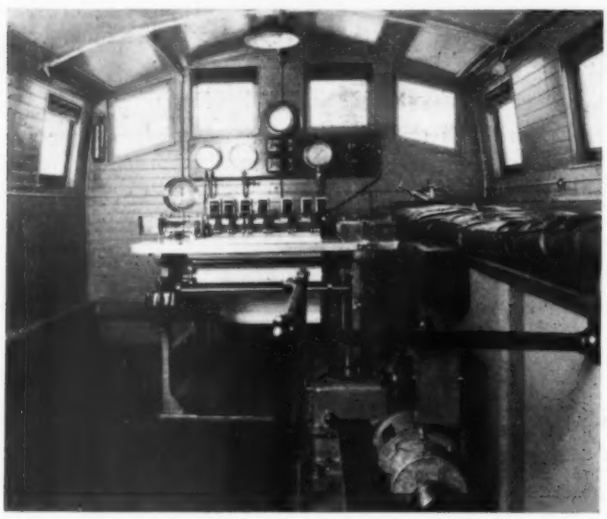


View of the Left Side of the Work Room Showing the Work Table With Tier of Drawers at One End, and the Upper Berth and Cupboards Above



buff, reverse lever, throttle, speed, distance marks, milepost and station locations, one-minute intervals and six-second intervals.

Datum reference lines are necessary for brake-cylinder pressure, brake-pipe pressure, back pressure, steam pressure, drawbar pull, buff and speed. These datum lines are marked on the paper by aluminum rollers mounted on a shaft extending across the table at the front. These rollers have a very sharp flange, which marks the datum line, and a tread on which is a rubber stamp, designating what the line above each base line represents. Inking pads are in contact with each roller at all times and the line made by the flange is very fine and comparable with that made by a pen. There is a decided advantage in recording datum lines in this manner as it removes seven pens from the main bridge bars and means less pens to watch and keep working. So far as is known, this is the first time this arrangement has been utilized in a dynamometer car.



Interior View Showing the Chronograph Table, Speed Recorder, Electric Clock, Gages, etc.

Records of brake-cylinder pressure, brake-pipe pressure, back pressure, steam pressure and buff are obtained through steam indicators, mounted on the left top of the chronograph table. The pencil motion of each indicator is extended through levers to the proper position on the table. The drawbar-pull pen arm, the full travel of which is 3 in., derives its motion through a lever from the above piston rod. By changing springs in the drawbar-pull indicator cylinder a full 3-in. movement of the drawbar-pull pen is obtained with a pull of either 25,000, 50,000, 75,000, 100,000, 150,000, 200,000, or 250,000 lb.

The integrator is fastened on top of the chronograph table at the front and makes one revolution for each three square inches area between the datum line and the drawbar-pull line. Each revolution of the integrator is recorded on the paper as a notch, by means of a commutator on the integrator shaft, a pilot relay and pen-arm relay.

On the right top of the chronograph table are eight of the latest type Veeder electrically-operated counters. These record the number of integrator notches, number of 100-ft. distance marks, revolutions of the left water meter, revolutions of the right water meter, revolutions of the coal or oil meter, strokes of the front air pump, strokes of the back air pump and strokes of the feed-water pump.

Near the speed-change box, on the floor of the cupola, at the right of the operator is a ¾-hp. 30-volt General Electric constant-speed motor for operating the speed recorder and indicator, and the paper drive when desired. On the end of the motor shaft is a governor which holds the speed very close to 1,725 r.p.m. and final adjustment of speed is by means of a face plate rheostat connected in series with the motor field. On top of the motor is a small panel on which is mounted a voltmeter and a speedometer, which shows the speed of the motor.

The speed recorder and indicator, an ingenious device developed by the Baldwin Locomotive Works, is mounted on top of the chronograph table at the right. A small lever at the right top of the table controls the speed-indicator and recorder drive. With the lever in central position, the speed device is in neutral; when moved to the left the indicator and recorder give the true car speed and when moved to the right, double the car speed is indicated and recorded. The double speed arrangement is very convenient for close readings of slow speeds, and it is quite essential in figuring indicator cards that the speed be known to as fine a degree as possible.

Selective Switch Box in Cupola

Mounted on the side of the longitudinal seat at the right side of the cupola, close to the operator's chair, is the selective switch box with a master switch and marked individual switches for each electrical circuit in the cupola and those extending in a cable from the cupola to the locomotive cab and pilot. A telephone in the cupola and one in the locomotive cab afford a means of communication between the operator and the assistant. The circuits extending from the switch box and table to the locomotive are enclosed in a cable terminating in a junction box at the left of the front door of the car.

At the front right corner of the cupola is a dead-weight gage tester for calibrating the drawbar-pull indicator and recorder as well as all other pressure-recording indicators.

On the front wall of the cupola, below the windows, is the oak gage board on which is mounted a Seth Thomas clock, duplex air gage, steam-pressure gage, drawbar-pull gage, clock relay, integrator relay and weighing-head alarm bell. The clock is so arranged that electrical contact is made every minute and this is indicated on the paper. The two six-second marks on the paper are timed from constant speed motor.

On the chronograph table and at each sliding window in the cupola is a button switch for indicating the location of stations and mile posts.

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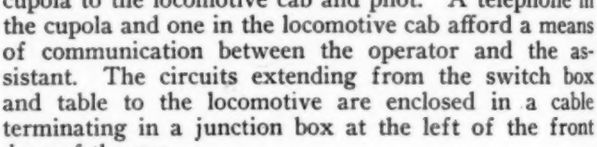
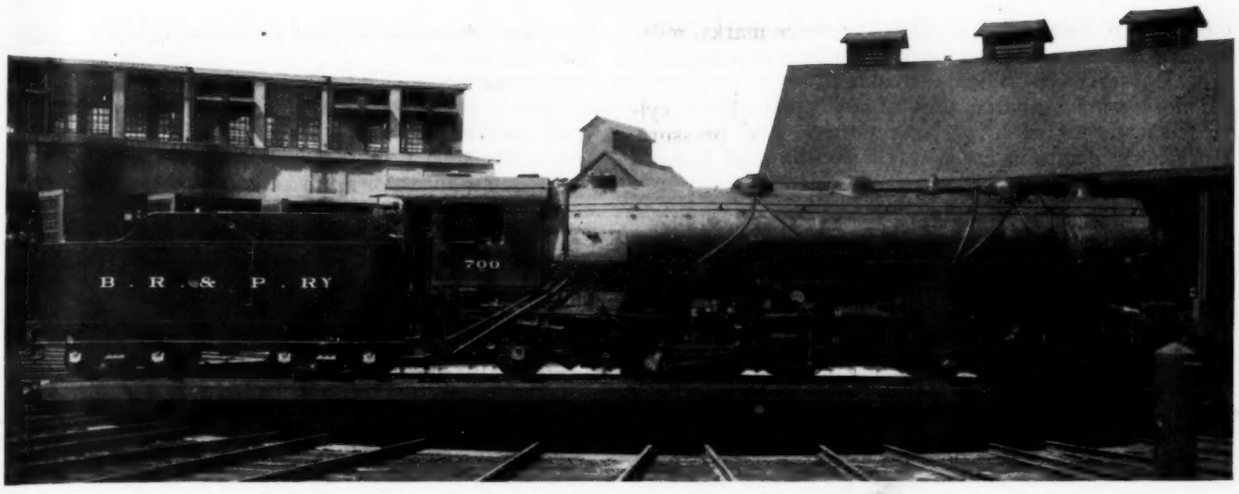


Erie Express Train at Jersey City, N. J.



Most of the Tonnage Trains on the B. R. & P. Are Handled by Mallet Locomotives

Better Operation, Better Maintenance Less Overtime

Buffalo, Rochester & Pittsburgh effects savings in road and yard time of its freight trains

IN the first ten months of 1926, 1,990 tonnage freight trains were operated from Punxsutawney, Pa., to East Salamanca, N. Y., 118 miles, on the main line of the Buffalo, Rochester & Pittsburgh, in an average time of 10 hr. 27 min. In 1928, during the similar period, 1,889 tonnage trains made an average time per train of 8 hr. 58 min. over the same stretch of railroad, or a saving of 1 hr. 29 min. per train in crew time. This represents a total saving in crew time for the ten months of over 2,785 hr.

The operation in the reverse direction also shows a material improvement. During the same period in 1926, 1,967 trains were operated southbound, with an average time per train of 8 hr. 10 min., while in 1928, the southbound trains totaled 2,183 and required an average of 7 hr. 23 min. per train or a saving in crew time of 57 min. per train. This represents a total saving in crew time southbound of over 2,073 hr., on the 2,183 trains operated in the first ten months of 1928.

That this improvement was not confined entirely to the main line is indicated by the showing made on the branches, where the traffic handled consists almost entirely of coal from the mine tipples and empty cars to the mine yards. The details of these savings are given later.

A number of things have contributed to this saving in time and its inevitable result of improving the efficiency of operation, among the chief of which are the greater familiarity, by increasing use, with the peg system and the high standards of maintenance of way and equipment.

In addition to the saving in road time, a marked improvement has been made in the speed with which the cars are handled through the yards. This has been accomplished by centralizing the coal concentration, instead of collecting it at several points, as previously, and by the adoption of the maintracker principle, modified to meet local needs.

The Traffic Handled

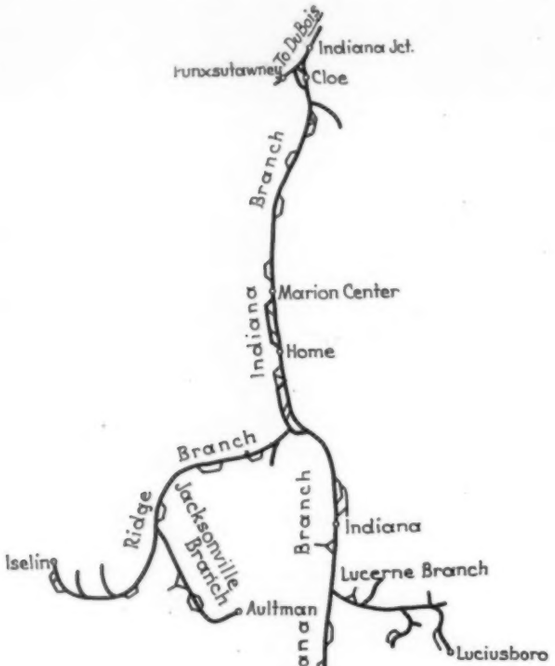
Originally, the Buffalo, Rochester & Pittsburgh was almost entirely a coal carrier, this having been the primary purpose for which the line was built. In recent years, by intensive solicitation, following the establishment of outside agencies in principal cities in the east, middle west and southwest, and the inauguration of "manifest" runs, other traffic has also been secured so that the ratio of coal and coke to all traffic has been reduced. For example, a considerable volume of through merchandise traffic from points west of Buffalo and Pittsburgh, including points south and southwest, for Buffalo, Rochester and points east is now being handled via Pittsburgh or Buffalo. The growth of this traffic is indicated by the fact that coal and coke constituted 74.8 per cent of the total traffic in 1905, 69.9 per cent in 1910, 68.4 per cent in 1915, 66.8 per cent in 1920 and 58.6 per cent in 1927. During the first nine months of this year, the B. R. & P. handled 5,022,718 tons of bituminous coal and 91,185 tons of coke. Approximately 55 per cent of the total through coal traffic handled moves via the Rochester division, while 45 per cent moves through Buffalo and the Niagara frontier.

In addition to operating a line, known as the Rochester Belt, from Lincoln Park, N. Y., to Genesee Dock on Lake Ontario, this railroad, in connection with the Canadian National, operates two car ferries between Genesee Dock and Cobourg, Ont., where connection is made with the Canadian National and Canadian Pacific. A considerable tonnage of coal and other com-

modities moves via this route. The coal piers on Lake Ontario at Rochester (known as "Charlotte Docks") are also served by this railroad and have a capacity of more than a million tons annually for delivery to vessels handling coal for Lake Ontario and St. Lawrence river points in cargo lots. The tonnage handled through the port of Rochester is greater than the total tonnage handled through all other ports on Lake Ontario.

Physical Characteristics

The B. R. & P. extends from Buffalo and Rochester on the north to Pittsburgh on the south and New Castle on the west, reaching the latter points by track-



Most of the Coal Originates on This Branch Line Territory

age rights over the Baltimore & Ohio from Butler, Pa. In addition, it owns and operates a number of branches, serving coal mining territory principally. In all, 602 miles of line are operated.

The main line is double-track from Ashford, N. Y., to Punxsutawney, Pa., 131.4 miles, and there are a few other short stretches of double track. The standard weight of rail is 100 lb. and the main line is about 85 per cent of this weight of rail, the remainder being 90 lb., while the branches are laid with 100 and 90-lb. rail. The main tracks and branches are all fully tie-plated and there are approximately 90 per cent creosote-treated ties in the main tracks and 65 per cent in side tracks. The ties are treated at the company's own timber preserving plant at Bradford, which was put in service in 1910. Thus, the heaviest types of power owned can be operated on any part of the B. R. & P.

The line is equipped with automatic block signals between Rochester and Ashford, 93.7 miles, between Buffalo and East Salamanca, 60.8 miles, and between Mount Jewett and Punxsutawney, 78.2 miles; manual block signals being used on the remainder of the line.

In order to contend with the physical handicaps, the track is maintained in the best of condition. On this, as on other railways traversing mountainous territory, the proper superelevation of curves is highly important. Through the medium of years of study and experience, the proper superelevation of each curve has been determined. Standard curve elevation diagrams have been evolved for each portion of the railway, which show graphically the proper superelevation for each curve. The directions contained in these diagrams are adhered to closely by maintenance forces in the performance of work.

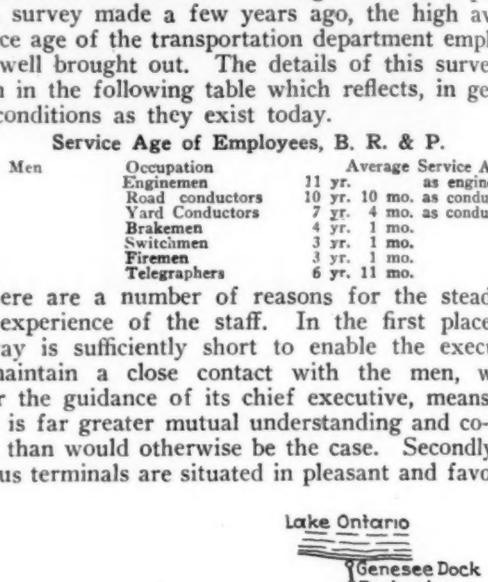
The Class of Employees

Much of the successful and constantly improving operation is attributable to the high class of employees. In a survey made a few years ago, the high average service age of the transportation department employees was well brought out. The details of this survey are given in the following table which reflects, in general, the conditions as they exist today.

Service Age of Employees, B. R. & P.

No. of Men	Occupation	Average Service Age
411	Enginemen	11 yr. as enginemen
224	Road conductors	10 yr. 10 mo. as conductors
137	Yard Conductors	7 yr. 4 mo. as conductors
380	Brakemen	4 yr. 1 mo.
188	Switchmen	3 yr. 1 mo.
414	Firemen	3 yr. 1 mo.
279	Telegraphers	6 yr. 11 mo.

There are a number of reasons for the steadiness and experience of the staff. In the first place, the railway is sufficiently short to enable the executives to maintain a close contact with the men, which, under the guidance of its chief executive, means that there is far greater mutual understanding and co-operation than would otherwise be the case. Secondly, the various terminals are situated in pleasant and favorable



Operating Diagram of the B. R. & P.

localities, from the standpoint of living conditions.

In view of the difficulties surrounding the operations, experienced men and a high morale are essential to efficient operation. Practically all of the transportation department employees were recruited from farming and mining communities along the line. In this connection, all the division officers were promoted from

the ranks and received their railroad education on the B. R. & P.

Co-operation has been built up and strengthened by the monthly staff meetings which have been held on this line for many years. These meetings are attended by both officers and employees and subjects dealing with operating problems are selected and assigned to individuals for the preparation of papers. The discussions which have followed the reading of these papers have been productive of many suggestions of value.

Maintenance of Equipment

An intensive campaign for proper lubrication of cars has still further reduced road delays. The mileage per hot box has been increased from 13,405 in 1921 to 54,719 in 1927, and the average for the first nine months of this year was 57,137 miles, showing that the improvement is a continuous one. The performance with respect to engine failures also shows an improvement. The mileage per engine failure has been increased from 7,644 miles in 1921 to 30,703 miles per failure in the first nine months of 1928.

The Peg System

The peg system of freight train operation, in use on the Buffalo, Rochester & Pittsburgh at that time, was described in the *Railway Age* of March 17, 1923, page 755. This system, in all of its essential details, is still in operation.

A "peg" is a non-timetable schedule for a tonnage train, and, on the B. R. & P., pegs are provided for all trains. As at first inaugurated, this system provided for the ideal operation, based upon intensive study of the time it should take a freight train to get over the division. Some changes were made as experience dictated, and now the pegs are on a basis which is the result of over ten years' usage of this method of operation.

One of the principal advantages gained under this system is that the dispatchers are able to arrange meeting and passing points on a definite basis, the schedule or starting time being arranged to suit road conditions with relation to other trains.

There are many factors which tend to produce efficient operation by the use of this system. Train crews have definite information as to what is expected of them, enginehouse foremen are able to systematize their work, since they always know at just what time they will be called upon to supply power. An instance of how this works out is found at the 15-stall enginehouse at Punxsutawney, where an average of over 70 engines are handled and dispatched per day. Yardmasters can not now run their trains in fleets, whenever power, tonnage and crews are available, for, if this were permitted, the trains would have to assume space intervals out on the line, resulting in delays, overtime and a waste of power

Branch Line Operations

The experience and skill of the men have been particularly effective in branch-line operations. On most of the mine runs, the trains make turn-around trips, setting out empties and picking up loads. Since the loading is not completed until evening, practically all of the switching at the mine tipples must be done at night. An added disadvantage is the almost constant presence of mist and fogs in the valleys where the tipples are situated. That a continuing improvement is being made in train movement, is evidenced by a saving of 52 minutes per train run, in 1928, as compared with the same period of 1926. In this connection, it should be noted that in most cases these trains are operated with two locomotives and in some cases with three, so that the reduction in overtime represents a greater monetary saving than would otherwise be the case.

Most of the mines served are south of Punxsutawney, on the Indiana, Ridge, and other branches. The territory traversed is indicated on the accompanying map. The usual mine tipple loading methods are followed. The empty cars are spotted on the tracks above the tipple. Car handlers let them down by gravity to the loading spots under the chutes, where they are ready for "pulling". There are about 80 mines in this territory which are served in this fashion. The rating on these branches is 3,750 tons. In order to maintain this tonnage over the branches, the trains are double-headed, and helper service is also provided in some instances.

Formerly, the weighing and some of the classification work was done at various outlying points in the producing territory. Under the present arrangement, the cars move on card billing to the gravity yard at Cloe, near Punxsutawney, where all weighing and classification has been centralized, and where the waybills are made out after the cars have been weighed.

Manual block signals with block offices at frequent intervals, are used on the branches, except on the double-track between Marion Center and Home, where automatic signals are provided. This double-track and the automatic signal installation were provided after a careful time study, which indicated this as the busiest stretch of railroad on the branches, and the expenditure has been amply justified in the increased efficiency of train movement.

The importance of proper maintenance of way can hardly be over-emphasized in connection with these branch line operations. As it happens, an excellent example of the value of proper maintenance is to be found in the operation of the Yatesboro branch. This branch was formerly owned by a coal company, which brought the cars to Echo, on the main line, with its own power. The B. R. & P. acquired this line from the owners and began operating a mine-run out of Punxsutawney to Yatesboro late in 1926.

The maintenance forces raised and reballasted the line and made heavy tie renewals. Light rail was replaced with heavier rail and a passing track was constructed near Yatesboro. The standard policy of the Buffalo, Rochester & Pittsburgh of improving drainage by constructing surface ditches and providing standard roadbed ditches, where track is raised and reballasted, was carried out in this territory. In addition, two bridges were strengthened so that heavy locomotives might be used.

The results of all this were immediately apparent. The improved operation amply justified the expense necessary in bringing and keeping this line up to B. R. & P. standards.

The concentration of the classification and weighing of coal at Cloe, permits of a much more efficient utilization of the peg system, among other economies. It also permits the making up of maintrackers. Depending upon the volume of traffic handled, solid trains of coal are made up and run through from Cloe to Buffalo and Rochester, and in some cases, to intermediate junction points. There are a number of junction points between East Salamanca and Rochester, where the volume of traffic does not amount to a train load daily to any one junction point. Cars destined to several of these points are made up into a train at Cloe in

such a manner that those for any one junction will be together, on the head or rear end, as the case may be, upon arrival at that point.

The empty movement is also pre-classified and main-tracked. Empty cars returning to the road for movement to the mines are classified in the yards at Rochester and Buffalo Creek. They are then ready for movement to the mines without further classification and much intermediate switching is avoided.

The principal car repair shop is at Dubois and empty cars received from connections and requiring repairs, are sorted out at East Salamanca and frequently run in solid train to Dubois. This materially expedites repairs and aids in preventing car shortages.

The results obtained are not attributable to any one factor. The careful, consistent program of maintenance of way, which provides heavy capacity track even on the branches, makes possible the use of heavy power. The maintenance of equipment, which is studied as carefully as the maintenance of way, provides a steady and reliable source of power and sturdy, serviceable cars. Road delays because of engine failures or bad order cars are thus materially reduced. The experience of the men and the various changes in operating practices have accelerated the movement of trains in mine-run service. The peg system and the main-trackers, incorporated with the physical improvements, have resulted in more efficient road and terminal operations on the main line.

The excellent showing, therefore, was obtained, not by unconcerted efforts of one department, but by the co-operative efforts of all departments. The operation of this railroad is an example of what might be called "intensive railroading".

Reduction of Export Grain Rates Urged

WASHINGTON, D. C.

CRITICIZING the Interstate Commerce Commission for having "distinctly failed to do its duty under the mandate of Congress," contained in the Hoch-Smith resolution, Governor Clyde M. Reed of Kansas testified before the Senate committee on interstate commerce on February 1, urging the passage of the joint resolution introduced by Senator Capper directing the Interstate Commerce Commission to adjust the rates on export grain and grain products "on a basis that will permit grain and grain products produced in the United States to move as freely as grain and grain products produced in the Dominion of Canada so far as such rates may be lawfully applied * * * * *".

Governor Reed said he was appearing on behalf of the state of Kansas as a whole and with the knowledge and approval of several state agricultural organizations, for which he had appeared as counsel in the western grain rate case now pending before the Interstate Commerce Commission. He said that case has been before the commission nearly two years and that it does not now seem possible to get action in time to help the crop of 1929. The crop of 1930 seems the first that can hope for any relief from that source, he said, and by that time it will have been more than five years since the Hoch-Smith resolution was passed. He declared that the commission "seems to have wholly failed to grasp the meaning of the Hoch-Smith resolution" and has not decided "a single case of major importance coming within the scope of this resolution" or one "giving agricultural producers any relief." He dismissed the cases which have been decided by saying the resolution was not passed by Congress "to affect luxuries on the breakfast table, such as citrus fruits and peaches".

Other representatives of the Kansas farm organizations, the National Grange, and the American Farm Bureau Federation, also testified in support of the resolution and Chairman Watson of the committee stated that a copy of Governor Reed's statement would be sent to the Interstate Commerce Commission with an invitation to reply to it in writing or by the testimony of a commissioner. Dr. C. S. Duncan, economist for the Association of Railway Executives, also asked for an opportunity to be heard.

At the close of the hearing Senator Watson suggested a change in the language of the resolution to provide a more definite basis for the commission than that proposed, saying that it would have to make an investigation to ascertain how freely Canadian grain moves, but most of those who spoke for the resolution discussed it rather as a reminder or a prod to the commission to take action under the Hoch-Smith resolution. Chester Gray, Washington representative of the American Farm Bureau Federation, said the idea was "to give a little more impetus, a little more 'pep', to the Hoch-Smith resolution."

After a detailed discussion of the Canadian rates, which he said give the Canadian wheat farmer a distinct advantage over the United States wheat farmer in reaching the world market, Governor Reed also criticized the commission for its recent report to the Senate that the Canadian basis of rates would not be warranted for application to the railroads of the Northwest.

He said that while the commission had referred to the lower taxes and to the subsidies of the Canadian roads it had given a misleading impression by ignoring other factors, such as the lower cost of fuel to the railroads of this country, and their greater traffic density, as well as land grants received by roads in this country. He said that four Kansas roads had received land grants and local aids amounting to $65,000,000.

He also pointed out that the commission's report had applied particularly to the northwestern roads, but said that it had been used as propaganda by the southwestern roads to show that grain rates cannot fairly be reduced, although they are in a different financial situation.

Taking southwestern roads having about 56,000 miles, Governor Reed produced a table to show that in 1926 they had earned $38,915,217 more than the income necessary to give a fair return of 5¾ per cent on their valuation, or 6.91 per cent on their valuation, but for this purpose he used the *net railway operating revenue* of $225,146,036, as compared with $187,230,819 which he figured was necessary to give a fair return. In discussing the table, however, he said that this was "6.91 per cent above all expenses, including taxes." He later showed that the taxes amounted to $69,179,049, but he said the southwestern roads had saved 54.9 per cent of this in their cost of fuel as compared with that in Canada.

Referring to the western grain case Governor Reed said that about three-fourths of the 53,000 pages of testimony was devoted to that offered by the markets, who are concerned primarily with the relationships between the rates, rather than with the producers' rates to the primary markets, although the commission had been asked to separate the case into two parts, and that representatives of the agricultural interests have been "required to prove and reprove the 'existing depression

in agriculture'" which Congress had declared four years ago.

Several of the senators present made remarks or asked questions indicating a belief that the commission should have taken the word of Congress for this. Even without the resolution, Governor Reed, said, the commission should have reduced the export rates on grain to the Gulf because they are a "transportation scandal", and he declared that the Hoch-Smith resolution was a "special direction to the commission to hurry up and do it and they didn't".

Mr. Gray advocated the resolution as one means of moving the surplus grain into exports for the purpose of making possible a higher price for domestic grain.

Lower Coal Rates from Illinois Sought

A HEARING before representatives of the Interstate Commerce Commission on coal rates from Illinois to Minnesota and Wisconsin was opened in Chicago on January 31. The Illinois coal operators are seeking the establishment of lower rates and the restoration of the rate relationship between Illinois coal and eastern coal moving over the docks that existed prior to the Lake cargo coal case and the Lake dock cases. In the Lake cargo case the commission granted a decrease in rates of 20 cents a ton on coal shipped to the Lower Lake ports for distribution by the docks in the Northwest from Pittsburgh, Pa., fields and other mines in the East. In the Lake dock cases the rates from Illinois mines to points in the Northwest were increased 28 cents while the rates from Northwest docks to points in that territory were not changed.

During the first four days of the hearing, testimony was presented by operators and representatives of the Illinois Coal Traffic Bureau, which instigated the proceedings, to show the decrease in coal shipments and production since the change in rates. The Illinois interests argue that the increase in rates in 1924 deprived them of their northwestern business which went to the coal dealers who shipped partly by water from eastern fields. D. W. Buchanan, president of the Old Ben Coal Corporation, testified that under existing rates the surplus coal from the eastern fields absorbs a substantial part of the basic market for Illinois coal, even though the eastern operators are in a position to secure normal returns in their immediate distribution area if they obey the economic law of relating production properly to the consumption requirements therein. He cited the population of the New England states, New York, Pennsylvania, New Jersey, Maryland, Delaware, Virginia, West Virginia and Ohio as 41,000,000 according to the 1920 census and compared that with 17,000,000 for Illinois, Wisconsin, Minnesota, Iowa and Missouri, the states in which Illinois coal must find its principal consumption. Witnesses for the operators testified that 1,902,262 tons of coal were shipped from Illinois mines to Minnesota and Wisconsin during the first ten months of 1925 as compared with 1,086,619 tons in 1928. In contrast, the coal shipped from eastern mines to Lake Erie ports and thence by boat to the northwest increased from 27,862,996 tons in 1925 to 34,765,743 tons in 1928.

Other testimony was introduced to show that while rates on coal from Illinois to the territory in dispute were advanced approximately 28 cents a ton in 1924, rates on coal from the eastern mines to Lower Lake Erie ports for trans-shipment to the northwest docks were decreased 20 cents, thereby giving the eastern mines an advantage of 48 cents. A further advantage said to be enjoyed by the eastern shippers was lower production costs brought about by non-union operation. The mines in the east have had no such handicaps in producing coal with labor as that experienced in the union fields of Illinois and Indiana.

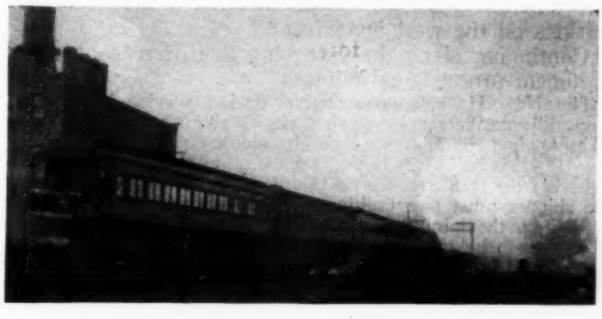
Herman Mueller, traffic manager of the St. Paul Association of Commerce, and A. B. Pratt, traffic manager of the North States Power Company, Minneapolis, Minn., presented the consumers' point of view. They stated that competition on coal in the northwest has practically been destroyed by the existing rates, in which the docks handling eastern coal are favored against the Illinois mines. Mr. Mueller said the consumer must pay all of the transportation charges on coal as well as the cost of its production and therefore has a vital interest in the measure of the relationship of the rates on coal from all sources of supply. Geographically, he continued, the mines in Illinois are nearer to the Twin Cities but the eastern coal is brought much closer by reason of the facilities that are provided for its movement via the Great Lakes.

In manufacturing, the northwest consumers were cited as having many other handicaps in addition to the cost of coal. These included the transportation of raw and finished materials long distances to factories. Mr. Mueller outlined the history of rates in detail and showed how the Twin Cities, which are served by nine trunk line railroads, five of which reach Duluth and Superior, and three of which reach the Illinois coal fields while four others have direct connections with these fields, and which, as a result, enjoyed healthy competition, have been deprived of the benefits of this competition by the change in rates. He said the dock interests in 1924 made an effort to secure an increase in the rates from southern Illinois to the Twin Cities rather than to secure a reduction in their own rates.

The director of the Madison, Wis., traffic bureau testified to show the effect of the rates on that territory saying that of the 82,000 tons of coal used 32,000 tons comes from eastern mines. The Wisconsin Paper & Pulp Manufacturers Traffic Association presented exhibits to show that 35 mills included in its membership contract for 888,300 tons of coal annually of which 828,300 tons is from the east and that since four-fifths of the cost of producing paper is attributed to coal, a reduction in rates from Illinois mines will benefit this industry.

The Railroad witnesses expressed divergent views regarding a change in the rates. A. F. Cleveland, assistant freight traffic manager of the Chicago & North Western, favored existing tariffs, saying that the tariffs are just, reasonable and unprejudicial and that adjustment would operate adversely to the dock interests in the northwest.

* * *



On the Erie at Jersey City, N. J.

Exceptions Filed in New York Freight Trucking Case

New Haven takes exception to recommendation that its constructive station be discontinued while other roads object to more authority for Commission

EXCEPTIONS to the proposed report of Attorney Examiner Harry C. Ames, in the New York City constructive and off-track stations investigation, were filed with the Interstate Commerce Commission on January 30 by the several railways and other participants to the proceeding. This proposed report was abstracted in the Motor Transport Section, *Railway Age,* of December 22, 1928, page 1275. The Interstate Commerce Commission has assigned the case for oral argument at Washington on March 7 and 8.

In general the railways, excepting the New Haven, which did not join the other roads in canceling constructive station tariffs, concur in the examiner's finding that the commission is without authority to compel a continuance of the trucking services. Their exceptions are directed in the main against that portion of the proposed report which recommends that the Commission seek, from Congress, the authority necessary to compel the installation of auxiliary highway services by rail carriers.

New Haven

The New Haven, on the other hand, takes exception to that part of the examiner's report which says: "But the fact cannot be explained away that it (the New Haven) pays the cartage to Fifty-ninth street for consignees located south of that street, whereas consignees located north thereof and intermediate to Fifty-ninth street are compelled to pay their own cartage from 132nd street. This is clearly an unjust discrimination * * * * * *" Exception is also taken to that part of the recommended conclusion which holds: "That the constructive station now maintained by the New York, New Haven & Hartford should be discontinued because it is in violation of section 2 of the act."

The argument on the first exception seeks to draw a parallel between the New York Central rail service to its stations on Manhattan Island and the New Haven's extension of its service from Harlem river, to its Fifty-ninth street constructive station, by truck. In this connection it is held that: "If it can be said that the New Haven makes a reduction from the New York rate by extending its service from Harlem river to Fifty-ninth street by truck, then likewise it is true that the New York Central makes a reduction from those rates in extending its service from Spuyten Duyvil by rail to Thirty-third street or St. John's Park or by float to its four pier stations on the west waterfront."

Continuing along the foregoing line of reasoning the argument proceeds as follows:

The New Haven's constructive station service is afforded as an alternative service to that via its pier stations—the same rates apply in either case and the shipper pays such rates to the New Haven without any rebate or allowance whatsoever. Whether the traffic moves via the piers or via Fifty-ninth street, the shipper must pay (subject, in the case of the constructive station, to the minima provided by contract between the New Haven and the truckmen) the going rates for the movement from or to the point where the New Haven's service terminates or begins.

Of course, if the New Haven did not hold itself out under published rates to extend its common carrier service to lower Manhattan via the pier stations, there might be some point in the claim that by its constructive station service it relieves the shipper south of Fifty-ninth street of some of the expense of transporting his goods from the rail-head and so creates unjust discrimination within the meaning of Section 2 which forbids the carrier "to charge, demand, collect or receive from any person or persons a greater or less compensation, etc."

However, all the carriers serving New York apply the New York rates to many stations, some of which are more distant from the pier stations nearest their rail heads, than are the New Haven pier stations or Fifty-ninth street from its rail head at Harlem river. The Pennsylvania, for instance, has a pier station on Manhattan, on the North River opposite its Jersey rail-head. It also has a pier station in the vicinity of the New Haven's Harlem River station. To reach the latter, car floats must move from the Jersey side through New York harbor, up the full length of the East River and into the Harlem River. The same rates apply to both stations. But for the Pennsylvania's float service to Harlem River, any shipper in that vicinity receiving freight from that railroad would have to incur the expense of trucking from a downtown station, through intermediate territory where other shippers shipping via the Pennsylvania are situated. By locating a station at Harlem river and relieving shippers in that vicinity from the expense of trucking from a downtown station, has the Pennsylvania created a Section 2 discrimination as to mid-town shippers? If the answer be Yes, then every carrier serving New York is guilty of discriminatory practices. But no one would seriously answer Yes.

Assume that the Pennsylvania should find it more economical to truck than to float from its rail-head to its Harlem River station through the mid-town district, would that create a discrimination under Section 2? Is there anything so peculiar about truck service as to make a different answer in this instance than in the case of floating? Or does the fact that the Pennsylvania station at Harlem River is an actual physical station call for a different answer than would be given if it were a constructive station?

It is submitted that there is no difference, so far as creating a Section 2 discrimination is concerned between the all-rail application of rates by the New York Central, the float service application by the Pennsylvania and the constructive station service application by the New Haven. At Sheet 4 of the proposed report the Examiner says:

In the constructive-station practice the carrier simply substitutes the motor truck for the car-float and employs the truckman as its agent to complete its transportation contract.

The Examiner says the New Haven "is under no obligation to deliver freight at Fifty-ninth street any more so than at any other particular street in New York." It is possible that it is with this in mind that he differentiates the New Haven from such examples as that of the New York Central and Pennsylvania above referred to. But is the statement correct and does it lead to the conclusion reached?

Effect of Tariff Publication

No carrier is under any obligation to deliver freight at any particular point in any city or terminal district unless and until it has established a means of transporting to that point and has published tariffs in accordance with the Act covering its charges for such service. The numerous pier stations of the lines serving New York have been established from time to time and the legal obligation under tariffs to make delivery by car-float at such points has been assumed. The same is true as to inland off-track stations reached by motor truck service. Has not the New Haven likewise assumed (and with equal propriety) a legal obligation to deliver freight at Fifty-ninth street?

The Examiner appears to use an entirely different line of reasoning in connection with a similar state of facts at St. Louis. The lines in St. Louis are under no obligation to deliver freight at the west end of Eads Bridge any more so than at any other bridge or other particular point (other than their physical stations) in St. Louis, and yet the examiner in the St. Louis case concludes that the constructive-station at St. Louis is not unlawful and does not result in unlawful practices.

The brief, after the foregoing treatment of the allegation that the Fifty-ninth street constructive station creates unjust discriminations under section 2 of the act, continues to say that if there be any discrimination it arises not under section 2 but under section 3. It states the question thus: "The restriction of the service to shippers on the south side of Fifty-ninth street deprives all shippers north of that point of constructive station service. Does this result in undue or unreasonable prejudice?"

No Complaint on Station Location

In reply it is pointed out that no complaint has ever been made to the New Haven and that none was made during the hearings on the case "that the location of the constructive station was improper or unduly favored or subjected to disadvantage any particular shipper."

The brief quotes excerpts from the proposed report which excerpts point out what the examiner regarded as the advantages of auxiliary motor truck services in the New York area and which formed the basis for his recommendation that the Commission seek authority to compel the inauguration of such services. The brief then suggests that it be assumed that some preference or prejudice does exist and continues to ask, in view of the quoted findings, if such preference or prejudice is undue or unreasonable. It sets forth its answer as follows:

> The foregoing excerpts from the proposed report leave no doubt that the constructive station service of the New Haven is desirable in the interest of the public. This is true not only because of the direct advantages in service to shippers using its lines in and out of New York, but also because of the advantage to the carrier in the ultimate economies that are expected, which will indirectly benefit all its patrons by reducing its operating expenses.
>
> Question therefore arises whether the New Haven in providing its constructive station service as a substitute for pier station service may not reasonably restrict it to shippers normally served by the pier stations, and whether, if such restriction results in any preference or prejudice, it is undue or unreasonable.
>
> In an early decision of the Commission the following statement is made:—
>
> > Shippers generally at competing cities must and do adjust the conduct of their business to the differing rules and regulations which carriers find necessary to apply at different points in the reception and delivery of freight, and unless the carrier in providing transportation or delivery facilities, including the hour for closing, is clearly acting in disregard of the rights of shippers, the resulting inconvenience or embarrassment of shippers and even some additional expense in the delivery of freight to the carrier are not matters which warrant a finding that the prejudice is *undue*, or the disadvantage *unreasonable*.
>
> It would certainly seem that a service which the Examiner has found is so much needed to assist in solving the difficult terminal situation in New York should not be condemned on purely technical and theoretic ground that it may result in some prejudice to some shipper neither known or heard of. . . . Even if there were evidence of some prejudice, the interest of the community and shippers generally would so greatly outweigh individual disadvantage as to warrant the Commission in finding that it was not undue.

New York Central

The New York Central, while concurring in the results arrived at by the examiner, excepts in certain conclusions contained in the report. At the outset is restated the contention of the road's original brief that it should not be required to limit its practice of trucking in lieu of lighterage until the constructive station services of other carriers, including the New Haven, are at the same time discontinued.

Exception is taken to the conclusion that the service conducted by the New York Central is unlawful in any manner or in any way comparable with the constructive station services of the other carriers. "We desire again to repeat" the brief continues "that the service as conducted by this carrier is exactly what its name signifies, trucking in lieu of lighterage. It is a practice under which this carrier in every case makes an actual and not a constructive receipt or delivery of freight. The service, as stated in the proposed report, conducted by this carrier is purely an optional service and the examiner without going into so much detail could have and should have held that as a purely optional service it could have been discontinued or limited in the manner provided in the tariffs under suspension at any time without the necessity of any tariff publication."

The brief next quotes that portion of the report referring to minimum trucking charges beyond constructive station points and to the failure of the New York Central to provide such minimum charges for the truck movements beyond lighterage points. Comment on the excerpt is as follows:

> This respondent does not wish the inference drawn from this quotation that it had any ulterior or mysterious motive in its refusal to have such a provision incorporated in its contracts. This carrier does not believe it is in any way responsible for the trucking charges beyond the lighterage point and therefore has not attempted to police such charges. The trucking rate beyond the lighterage point is a matter purely between the shipper and his truckman and should remain such. For that reason, and only for that reason, we declined to incorporate in our trucking contracts any provision relating to trucking charges beyond the lighterage points.

In its original brief the New York Central contended that testimony of the Port of New York Authority concerning universal inland stations and other testimony of interests concerning the establishment of methods of store-door delivery were not germane to the issues. It finds nothing in the report to alter this contention and thus takes exception "to the inclusion of the examiner's remarks in the proposed report." Finally exception is taken by this road to that portion of the report wherein the examiner suggests his own plan for trucking services in New York and recommends that the Commission seek additional authority in these matters.

Central of New Jersey

The Central of New Jersey brief of exceptions is directed against "certain recommendations which if adopted by the Commission, might have a far reaching effect on future terminal practices at New York." Much of this brief is addressed to the discussion by the examiner of proposed inland stations on Manhattan supplemented by trucking services to rail heads. It is submitted by this road that:

> The report errs in assuming that a system of universal inland stations, supplemented by direct trucking, would prove less expensive than present pier station service.
>
> The report errs in assuming that the universal inland station, supplemented by direct trucking, would furnish a more satisfactory service than the present facilities.
>
> The report errs in finding that a system of constructive delivery such as the examiner proposes would be lawful and in the public interest.

Each of these exceptions is discussed in turn and their bases are designated respectively as: Speculation as to hypothetical cost, speculation as to hypothetical service and prejudgment as to propriety of suggested service. In closing the argument the brief states:

> The possibilities of supplementing the present terminal service at New York by trucking are now being actively studied by the interested carriers. The problems thus presented are such as the railroad managements should have full opportunity to solve in the light of their direct contact and practical experience. It is submitted that the Commission should not anticipate its

regulatory duties by attempting to dispose of hypothetical issues as the report proposes.

In concluding, we desire to emphasize that pages 1 to 56 of the tentative report present an able analysis and disposition of the issues directly involved in these proceedings. It is only after the tentative report has disposed of the legal issues and attempts a solution of hypothetical problems that it drifts into error.

What we have sought to make clear is: (1) that the present terminal service on Manhattan is exceptionally efficient and should not be jeopardized by any experiment, and (2) that the universal inland station proposal has not been sufficiently worked out to afford any reliable basis on which the Commission may judge whether it would prove more or less costly than the present terminal service, or whether it would afford an improvement in the quality of the present service.

Other Railway Participants

Exceptions were also filed on behalf of the Pennsylvania and Long Island, jointly, the Erie, the Lehigh Valley, the Baltimore & Ohio, and the Delaware, Lackawanna & Western. These were substantially identical and, while concurring in the specific findings, took exception to the examiner's recommendation. Many of these briefs stated that the railways have the New York situation under active consideration and are alive to the importance of its terminal problem. They suggest however, that its solution will best be promoted by leaving it to be worked out by the carriers themselves in cooperation with interested parties, subject to regulatory powers granted the Commission under the existing law.

Brooklyn Eastern District Terminal

The Brooklyn Eastern District Terminal in opening its brief of exceptions says that it is in entire agreement with the examiner's proposed findings but nevertheless excepts to those portions of the proposed report dealing with paragraphs 18 to 21 of Section 1 of the Act. The paragraphs cited deal with the issuance of certificates of convenience and necessity, define procedure for the establishment, extension or abandonment of service and circumstances under which the Commission may require the establishment or abandonment of services.

Exceptions are set forth as follows:

1. The proposed report errs in failing to hold that the carriers can neither be permitted nor required to continue their constructive station or constructive lighterage services unless the carriers either first obtain certificates of convenience and necessity under paragraphs 18 to 20 of section I of the act, or unless the commission authorizes or orders such continuance under paragraph 21 of that section.

2. The proposed report errs in failing to hold that the carriers may not be permitted to abandon, gradually or otherwise, their floatage, lighterage and pier stations unless they first obtain certificates of convenience and necessity under paragraphs 18 to 20 of section I of the act permitting such abandonment.

3. The proposed report errs at sheets 31 to 32 in holding in substance that the west side lines might make changes or substitutions in the character of their terminal facilities to and from Manhattan without obtaining certificates of convenience and necessity, provided they do not completely abandon all terminal facilities whatever.

After a lengthy discussion of each of the foregoing exceptions the Brooklyn Eastern District Terminal submits in conclusion "that before this Commission could require or permit the carriers to continue their present trucking services, or establish new trucking services, or permit the carriers to abandon their present marine terminal facilities in New York Harbor, this Commission must require appropriate proceedings under the provisions of paragraphs 18 to 21 of Section 1, and issue such certificates, authorizations and orders as are thereby required and warranted."

Port of New York Authority

The Port of New York Authority which is interested in the so-called statutory plan for Manhattan, involving off-track union freight station development, was one of the principal protestants at the New York hearings. In its brief of exceptions, this body characterizes the report of Examiner Ames as "a constructive document which shows an intelligent appreciation of New York's terminal problem and points the way toward a sound solution in the future. Its weakness lies in a tendency to minimize the Commission's powers under existing laws and in a consequent failure to deal firmly with carriers whose proposals threaten very serious injury to the public."

The brief continues to cite several comments of the examiner, favorable to terminal trucking services and pier station abandonment and from these proceeds to argue that the Commission has jurisdiction over the trucking services.

In this latter connection the following is contended:

The Examiner errs in stating (sheet 20) that it must be determined by what means the Commission has power to *require* the establishment of the trucking service. No such question is here presented. The question is, rather, whether the carriers, having voluntarily established the trucking service, may withdraw it without the approval of the Commission, it being clear that the Commission has jurisdiction over the service, and this being an investigation and suspension proceeding in which the carriers are proposing to withdraw the constructive station service.

The nature of this part of the proceeding must not be overlooked. That portion of it which deals with the continuance of the constructive station service is in issue in I. & S. No. 3100, which was consolidated for hearing with the main investigation. The constructive station service is provided by duly published tariffs. The tariffs were changed to provide for the withdrawal of the service. The Commission, upon a *prima facie* showing that the withdrawal of the service was unwarranted, took jurisdiction and suspended the tariffs. The only question now presented is whether the carriers have justified the lesser service which they now propose to render. This issue must be decided in the same manner as all similar issues are decided in investigation and suspension cases. In other words, the burden of proof is upon the railroad companies to justify the cancellation of the service. . . . In stating in his report that the Commission must determine whether it can *require* the trucking service, the Examiner overlooks the important fact that this is an investigation and suspension proceeding where it is incumbent upon the carriers to justify the *withdrawal* of the service. They have already established the service and the public is enjoying it. Whether the Commission could require the establishment of the service in the first instance is not in issue here. The question is whether, having voluntarily established the service, the carriers can justify its withdrawal in a suspension proceeding where the burden of proof is upon them.

From extended arguments in substantiation of the foregoing the brief proceeds to discuss the practicality of the constructive station plan and holds that "the services as now rendered by the railroads other than the New York Central is comparatively free from criticism and is so valuable to the shipping public that it should not be lightly cast aside or condemned * * * This record shows that the constructive station service, reasonably policed, will work and that it will work with a high degree of satisfaction."

In a lengthy discussion on inland stations, the position of the Port Authority with reference to these facilities is defined. It is then contended that the examiner errs in finding that pier stations are adequate to accommodate the constructive station traffic. "The examiner, although taking a broad view of other phases of the investigation," it says, "has treated the subject of pier station service in a manner that leaves out of consideration quite a number of important considerations." These considerations, regarded by the Port Authority as important, are next listed and discussed.

Finally the brief contends that the examiner errs in disapproving the New Haven's constructive station service and quotes extensively from the testimony of Major C. E. Smith, vice-president of the New Haven.

Exceptions were also filed by several of the other participants, including warehouse and trucking interest.

These participants, together with the position of each in the case, were listed in the abstract of the report, mentioned at the outset as having been published in the Motor Transport Section of the *Railway Age* of December 22.

Merchants' Association of New York

The Merchants' Association of New York first expressed its approval of the examiner's recommendation "that the piers should be cleared of the Loaders' Union." The brief then proceeds to challenge the carrier figures of tonnage moving through the constructive station. In this connection it holds the figures do not take into consideration "the tremendous volume of tonnage diverted from these constructive stations through the practice of substituting trucking for lighterage under which shippers received substantially lower cartage rates than they paid on business moving from constructive delivery stations, nor do they take into account the fact that there was a substantial movement direct to the customer's store door by way of, but not unloaded at, the inland freight station."

The brief contends that store door or constructive station delivery in Manhattan is not prejudicial to New Jersey or Brooklyn interests. It discusses constructive station and inland station service, the former of which the Association desires continued if its own store-door delivery plan be rejected. It states further:

The Commission should find that the cancellation of the tariffs providing for constructive delivery has not been justified. It should recommend as a substitute, however, store door delivery along the lines indicated by the Merchants' Association of New York. If carriers refuse to accept this recommendation of the Commission, they should be required to maintain the constructive delivery station. The Commission should require that shipments consigned to inland stations be unloaded at and delivered from such stations and that no by-passing be allowed. The Commission should find that it is not called upon to place all shippers in the Port of New York district on an exact parity with respect to receipt and delivery of freight; that there are certain advantages held by shippers and receivers on the Jersey shore that cannot be enjoyed by Manhattan shippers because of the physical conditions at Manhattan; that Brooklyn is entitled to enjoy the advantages of its contract terminals without the charge of discrimination by either New Jersey or Manhattan shippers.

Publishers' Association of New York

The Publishers' Association of New York City states that as the principal users of the constructive stations the New York newspapers desire to have the services continued. About 100,000 tons of newsprint paper are being handled through the constructive stations annually. "The discontinuance of the constructive stations," the brief holds, "would most seriously affect them by increasing their transportation costs and by bringing about delays and irregularities in the receipt of their newsprint paper, with the resultant necessity of keeping larger storage supplies on hand would increase their loss and damage claims due to the extra handling, and would undoubtedly lead to congestion at the railroad pier stations to which the newsprint paper would be diverted."

Here it is stated that the examiner seems moved by the fact that the constructive stations have been the outgrowth of competition and have led to further competition which has adversely affected existing facilities of some railroads. But the competition, it contends, has produced substantial economies and thus exception is taken to the examiner's finding that the Commission is without power to require their continuance. Exception is also taken to the examiner's failure to recommend a railway allowance to consignees who are equipped to do direct trucking from rail heads.

Further exceptions are taken by this Association to the following findings of the report: That pier stations will be adequate to accommodate present constructive station tonnage; that while the principle of the constructive station is sound, competitive conditions require its condemnation; that the competition under the constructive station plan is most destructive because it produces no new traffic; that the New Haven's constructive station creates unjust discrimination; that constructive stations may be abandoned without a certificate of public convenience and necessity; that because of the competitive situation the constructive station plan will not work in New York. Finally exception is also taken to various references to testimony without similar references to explanations or contradictions thereof. Each of the foregoing is argued in turn to the conclusion that "The Commission has ample authority to prevent the discontinuance."

The conclusion further states:

We believe that the record amply demonstrates that from the standpoint of economy and efficiency in operation the constructive stations are of immense advantage to the shipping public. We know that they are of great benefit to the receivers of newsprint paper. The record indicates that in general they result in economies for the railroads and that there is a possibility, by developing the use of the constructive stations, to increase these economies. For reasons stated in this brief and in our original brief, it is submitted that the constructive stations are lawful and that the reasons advanced in the Examiner's proposed report and elsewhere for a contrary view are without legal foundation.

It is therefore submitted that the Commission should order the suspended tariffs to be cancelled in so far as they propose to discontinue the constructive stations, and unless a better and more efficient method of truck delivery can be developed within the Commission's jurisdiction that it should require the constructive stations to be continued. It is submitted that the Commission may not order the New Haven, that desires to continue its constructive station, to abolish it, particularly as to the handling of newsprint paper. And finally it is submitted that as part of the general movement toward the increased use of trucks in the terminal operations in the New York area, the Commission should approve and encourage the payment by railroads to consignees of allowances for trucking their own freight when the freight is of such a character that it can be economically handled in this fashion.

Hearing on Container Service

WASHINGTON, D. C.

HEARINGS in connection with the Interstate Commerce Commission's investigation into container freight service of rail carriers opened before Commissioner Claude R. Porter and Attorney-Examiner Harry C. Ames on February 6. Commissioner Young of the Public Service Commission of Pennsylvania is also sitting on the case.

Following the entrance of appearances by the several participants to the proceeding Examiner Ames outlined the scope of the investigation. He stated that it would embrace a broad inquiry into the rates, charges, rules, practices and regulations, incident to the use of containers and likewise into their ownership, management, character of services, and contractual arrangements affecting charges or revenues.

The New York Central was the first to present evidence and its witness G. C. Woodruff, assistant freight traffic manager, occupied the stand throughout the sessions of the first day. Mr. Woodruff stated at the outset that he is a vice-president of the L.C.L. Corporation which controls patents for the containers, now in use on New York Central lines. He then proceeded to read into the record descriptions of the two types of containers now in use on his road.

These are the merchandise container and the bulk container, the former being approximately twice the size of

the latter. The container service was first inaugurated on the New York Central between Cleveland, Ohio, and Chicago on March 19, 1921, the witness said, and the existing l. c. l. rates were applied to container traffic. In January, 1922, a reduction of 10 per cent from these rates was made while a short while later an allowance was made to the patron for the handling of the empty container.

In connection with the application of these regular rates, however, Mr. Woodruff said, it developed that the container service offered no advantage to the road from an accounting standpoint since each item required separate billing. Furthermore as there was little demand for the service between Cleveland and Chicago in the beginning it was decided to transfer the container operations to the East. At the same time the tariffs were altered and became based upon what the witness designated as one analogous to the railway mail pay plan. The container rate became a charge per mile for a given weight.

In the preparation of this new rate base it was stated that consideration was given to the nature of commodities which had been moving in containers between Cleveland and Chicago. It was found that these commodities, generally speaking, were those upon which the first, second or third class rates applied. Hence in the establishment of the mileage rate it was purposed to work out a charge which would approach the level of third-class rates.

The witness here outlined the steps which the New York Central has taken in the past to keep other railways informed of developments of the service. He added that there has been no disposition on the part of the New York Central to retain for itself whatever advantages there may be in the provision of such services but, on the contrary, all roads were free to deal with the owners of the container patents.

In the foregoing connection, it was stated, that in August, 1922, the New York Central advised all trunk lines of its experience with containers up to that time. These roads, it was further stated, agreed at that time to the propriety of the experiment with the mileage rate and thus a tariff was filed to expire December 31, 1922, and fixing the rate at 3.5 cents per mile with a minimum provision. This first tariff was for intrastate business in New York, between Thirty-third street, New York City, and Buffalo, Rochester, Syracuse and Utica. Since, however, it was proposed to extend the service to interstate traffic, the Commission was advised of the tariff.

The term of this tariff was later extended and the rate increased to 4.5 per mile where it remained until 1927 when the base rate became five cents per mile with a minimum charge of $8.25 per loaded container. During this time, the witness stated, reports were regularly made to other roads and were only discontinued when these other roads seemed to be manifesting no interest in the experiment.

In December, 1927, however, plans were undertaken to extend the service to Boston and Springfield, Mass., and to several points on the New York Central and Lehigh Valley. The service has also been extended to several points in Central Freight Association, served by the New York Central. These extensions, Mr. Woodruff said, brought forth protests from other trunk lines. He reiterated here that the New York Central has done everything possible to advise its competitors in the matter. These competitors, he said, have been given free access to his company's files and representatives of several roads have made extensive examinations of these files.

[Further testimony offered at the hearing will be reported in next week's *Railway Age*.—EDITOR.]

Looking Backward

Fifty Years Ago

Another bill for regulating railroad charges has been introduced in the Wisconsin Senate. Its purpose is an enforced reduction of 25 per cent in charges for the transportation of freight and passengers.—*Chicago Railway Review*, February 8, 1879.

The State of Tennessee has instituted a suit against all but 2 of the 16 railroads in the state for the appointment of receivers and the seizure of the roads in order to escape the immediate payment of the obligations on bonds issued by the state to the roads. The state expects to apply the earnings of the railroads to the payment of interest and principal of the bonds.—*Railway Age*, February 6, 1879.

Some boldness would be required to predict to how great an extent it would be possible to reduce the cost of carrying freight on the through lines. If it is desired to increase the train-load to 2,000,000 lb. (1,000 tons) it would be necessary to design a car with a carrying capacity of 50,000 lb. and 2,800 cu. ft. which would weigh 25,000 lb., would have journals 4⅝ in. by 8½ in. and wheels 42½ in. in diameter. This is contrasted with the present day car which weighs 17,500 lb. and has a capacity of 20,000 lb. of freight, with wheels 30 in. in diameter and journals 3¼ in. by 6 in.—*Railroad Gazette*, February 7, 1879.

Twenty-Five Years Ago

The Interstate Commerce Commission has handed down a decision in which it finds no cause for prohibiting the pooling of immigrant traffic from New York and other Atlantic ports to western destinations.—*Railway Age*, February 12, 1904.

Gross earnings per mile of the Atchison, Topeka & Santa Fe have increased nearly 65 per cent in the past five years. In 1897, the first fiscal year of the present company, gross earnings per mile amounted to $4,752 while in 1903 this figure had increased to a total of $7,827.—*Railway Age*, February 12, 1904.

The plan of pensioning superannuated employees, which was inaugurated by the Pennsylvania and the Chicago & North Western in 1901, has proved so satisfactory that it is gradually being adopted by other companies. The latest to establish a pension system is the Atlantic Coast Line, which operates 4,200 miles of road, and controls over 5,000 more.—*Railway Age*, February 12, 1904.

Ten Years Ago

F. G. Jonah has returned from service overseas and resumed his duties as chief engineer of the St. Louis-San Francisco. His jurisdiction has been extended to cover the Missouri-Kansas-Texas.—*Railway Review*, February 8, 1919.

Two plans for the disposition of the railroads have been presented before the Senate Committee on Interstate Commerce during the past week. The most comprehensive one was that submitted by S. Davies Warfield, president of the National Association of Owners of Railroad Securities, proposing a law to provide that rates shall be sufficient to produce a minimum return of 6 per cent upon the combined property investment of the roads. The most novel one was that proposed by Glenn E. Plumb on behalf of the four train service brotherhoods. It provides for government ownership and operation by a single corporation, one-third of the directors to be chosen by the employees, one-third by the officers and one-third by the President of the United States; earnings above fixed charges to constitute a trust fund to be declared as a dividend to the employees in proportion to their wages.—*Railway Age*, February 7, 1919.

Communications and Books

Shipping by Water

CHICAGO.

TO THE EDITOR:

Your article entitled "Swelling the Conscience Fund" in the January 19 issue relates how the Texas & Pacific had been given a little money by a mother who, some 20 years before, had "beat" the railroad out of half a fare. In this connection, the writer was wondering if it would not be a good idea for the railroads to maintain such a fund with which to pay each other.

In reading various railroad reports these days, one is impressed by the bitter attacks that are being made against the inland and coastwise waterways of the country. Some of the same railroads, however, are having their own company materials delivered to their lines by water instead of patronizing other railroads.

I suggest that the *Railway Age* start a conscience fund into which may be put the savings made by the railroads when they buy company material for delivery by water, instead of by other carriers, this conscience fund to be distributed among the railroads who otherwise would have participated in the rail haul. If it is inconsistent for the country to pay out money for the construction of waterways, it is certainly far more inconsistent for the railroads attacking this policy to use the waterways for the delivery of their own material.

A. FLETCHER MARSH.

New Book

Law and Theory of Railway Demurrage Charges, by Harleigh H. Hartman. Cloth, 200 pages, 6 in. x 9 in. Published by Traffic Publishing Company, 150 Lafayette Street, New York City. Price $5.00.

Dr. Hartman has had long experience as attorney and examiner for the Interstate Commerce Commission and as lecturer and teacher, and a very brief examination of this book is sufficient to assure the reader that its author knows everything that is to be known about demurrage. All phases of the subject are treated in the fullest possible detail and court and commission decisions are cited by the hundreds. Demurrage being a feature of water transportation, was a subject of litigation before the railroads had even thought of using it, but the growth of the practice, as related to freight cars, since the first systematic organization of this branch of transportation at Omaha (1887), has encountered so much opposition and has been subject to such a variety of internal as well as external hindrances that the law student has no trouble in finding judicial records which enable him to delve into the very last detail of every possible question that may be raised. Any question about demurrage that has not been before the Interstate Commerce Commission and has not gotten into the courts may safely be classed as too small to be discussed.

The book does not profess to be an exhaustive treatise, and "attempt has been made to avoid too minute analysis;" but the voluminous notes and citations at the bottom of nearly every page will suggest to the ordinary reader that this attempt was not wholly successful.

Following the seven chapters into which the bulk of the matter is divided, comes Chapter 8 discussing the application of the demurrage rule to short line carriers—the difficult questions connected with the imposition of demurrage and per diem rules on short line railroads and on tracks belonging to large industries. The appendices fill over 70 pages; a table of cases fills 18 pages and 12 pages are devoted to a list of conference rulings made by the Interstate Commerce Commission. The body of the work, according to the preface, includes citations, where deemed desirable, of unreported decisions of the Interstate Commerce Commission.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Over a Century of Railroading. A brief analytical history of the Baltimore and Ohio Railroad. Illustrated. 32 p. Pub. by National City Company, New York City. *Apply.*

Opening of Pennsylvania Terminal at Little Creek, Norfolk, Virginia, January 10, 1929. Brief and attractively compiled historical sketch of an important new terminal, with cost figures, traffic movements, a map, and other material interesting for general information and in teaching transportation. 12 p. Pub. by Pennsylvania Railroad, Philadelphia, Penna., *Apply.*

Group Representation before Congress, by E. Pendleton Herring. A study of the groups of people who make up what the irreverent term "the watch on Washington." Included are brief histories of the organized labor groups including the railroad brotherhoods, the organized women, the organized reform groups and so on. 309 pp. Baltimore, Md., Published by the Johns Hopkins University Press. $3.

Certain Tendencies in the Development of World Railway Affairs, by A. A. Neopihanoff. The author is chief of the commercial department, Chinese Eastern Railway, and a lecturer on railway economics at the Harbin Law School. The study discusses railway statistics as relating to the status and development of public economy in general, factors affecting freight traffic, tendencies in railway development as affected by competition of other forms of transportation, and Russian, Chinese and German experiences. Reprinted from Manchuria Monitor, No. 10, 1928. 70 pp. Pub. by Printing Office of the Chinese Eastern Railway, Harbin, Manchuria.

Periodical Articles

Report on Inspection of Test Ties on C. B. & Q. after 19 Years' Service. Wood Preserving News, January 1929, p. 1-3.

Railroads Versus Waterways—Some Questions of Service, Subsidy and Taxes. The President of the Lehigh Valley points out several important considerations. Review of Reviews, February, 1929, p. 79-81.

The Use of Railway Labor-Saving Machinery, by C. A. Morse and J. B. Mabile. Description of machinery used to replace manual labor in building and maintaining railroad track and bridges. Journal of the Western Society of Engineers, January, 1929, p. 34-42.

The Battle with the Clever Bug That Eats Houses. An illustrated article on the subjugation of termites of special interest to railroaders whose houses, records, poles, cross-arms on poles, insulator plugs and so on have been attacked by this destructive insect. Literary Digest, February 2, 1929, p. 31-32.

"Winterthur" Type of High Pressure Locomotive With a Boiler Having a Working Pressure of 850 Lb. Per Square Inch, by J. Buchli. "The 'Winterthur' high pressure locomotive frankly can be considered as a step forward in the development of the steam locomotive . . ." p. 94. Illustrations and diagrams. Bulletin of the International Railway Congress Association, January, 1929, p. 75-94.

Buenos Aires to Washington by Horse, by A. F. Tschiffely. A 9600-mile journey through the mountains, plains, deserts and jungles that the proposed Pan-American highway may some day provide a comfortable road. It took two and a half years and necessitated some uses of Andean railroads not contemplated in the operating rules. The illustrations include several unusually fine railway pictures (p. 166 especially, 167, 174) and some of a variety of bridges (p. 159, 160, 161, 162, 163, 165, 166, and 190). National Geographic Magazine, February, 1929, p. 135-196.

Odds and Ends of Railroading

Fireman G. E. Bell, of the Baltimore & Ohio, claims some sort of record for his scoop, which has been in continuous service for 22 months, and has handled more than 7,260 tons of coal.

Unusual Freight

The New Orleans-Great Northern, the Gulf, Mobile & Northern and the Chicago, Burlington & Quincy have the distinction of serving as carriers of the first carload of Arabian horse-hair ever brought to America. This peculiar commodity is used in stuffing mattresses.

Kittenball Champs

While the book, "Kittenball and How to Play It", if there is such a book, has never come to the attention of this department, and we are, therefore hazy as to the rules of the game it is a pleasure to announce that a Great Northern kittenball team won the championship of one of the leagues in St. Paul and was runner-up in the city championship.

Oldest Railway Tunnels

The oldest railway tunnel is reported to be the Tyler Hill tunnel built in 1830, on the Canterbury & Whistable, in England. Another old-timer is the Glenfield tunnel, on the London, Midland & Scottish, built in 1832. It might be interesting for our historians to discover the oldest railway tunnel in this country.

Historical Note

When Queen Victoria first traveled by train in 1842, her coachman insisted on being on the engine beside the engine-driver, with the idea apparently, of better securing the Queen's safety. Unluckily for him, the various tunnels through which they passed transformed his immaculate livery and soap-shining countenance from white to black, so that when he descended at the end of the journey he more resembled a Christy minstrel than a respectable coachman of the royal household.—Railway Gazette.

Up in the Air

H. S. Brown, crossing tender for the New York, New Haven & Hartford at Weymouth Heights, Mass., had an adventurous career before he took up railroading. He was a professional parachute jumper, and has made hundreds of ascensions and jumps, sometimes with one parachute, sometimes more, and on one occasion with ten. One of his stunts was to have himself shot from a cannon in a balloon 4,000 ft. above the earth. His parachute caught fire on this occasion, but he smothered the fire with his hands and descended safely.

Keeping Cool

A traveler returned from India describes an interesting method employed on Indian trains in the height of the hot season for keeping passengers cool. Hanging screens are provided outside the windows of the cars, and the windows themselves are covered with a tissue of root-fibre, which is kept moist constantly. "Wind-catchers" at each window send what little breeze there is through the wet matting, and the traveler reports that, at noon, the temperature of his carriage was 87, as compared with 107 outdoors.

Women in Railroading

Miss Katherine E. Wilson claims to be the only one of her sex who is an operating executive of a railway. She is assistant to vice-president of the Illinois Terminal. In the same mail comes the news that a railway president is anxious to retire to devote more time to housework. In this case it is Mrs. Sarah Edenborn, who succeeded her husband as president of the Louisiana Railway & Navigation Company, after his death two years ago.

The Puller of Presidents

When John Ryan drove his train into Cincinnati on the Baltimore & Ohio recently, it marked his retirement and the completion of 51 years' service. John is known as the presidential engineman. During his career, he has been called upon to handle the special trains of four presidents: McKinley, Roosevelt, Taft and Wilson.

West Pointers

The Pere Marquette has an unusual record in that three of its employees or sons of employees are to enter the national military academy at West Point in the next class. They are S. A. Daniel, Phineas Adair and W. H. Ball. Daniel is a former employee, Adair is the son of P. B. Adair, trainmaster at Saginaw, Mich., and Ball is the son of W. J. Ball, who is on the staff of the division engineer.

Fashion Hint

The Gulf, Mobile & Northern has turned out engine 250 in a new coat of silver-white aluminum paint, with letters and numerals in blue. The object is to determine the best preservative in paints for steel work. If the experiment is successful, the conventional black will be abandoned and silvery locomotives will hereafter "hurtle through the night" as the fiction writers have it.

Something to Worry About

The freight cashier of the Pennsylvania at the Mansfield, O., freight station addressed a letter to the freight agent of a connecting line at Terre Haute, Ind., on Aug. 15, 1918, asking for a copy of a way-bill correction covering a car. The Terre Haute agent apparently sent the request to the clearing house at Cincinnati, and the clearing house evidently mailed it promptly. But what Agent Schultz at Mansfield is now trying to figure out is where was the letter during the more than 10 years it took to travel from Cincinnati to Mansfield, O., as it arrived at his station on Nov. 23, 1928.—Pennsylvania News.

Casey Jones Litigation

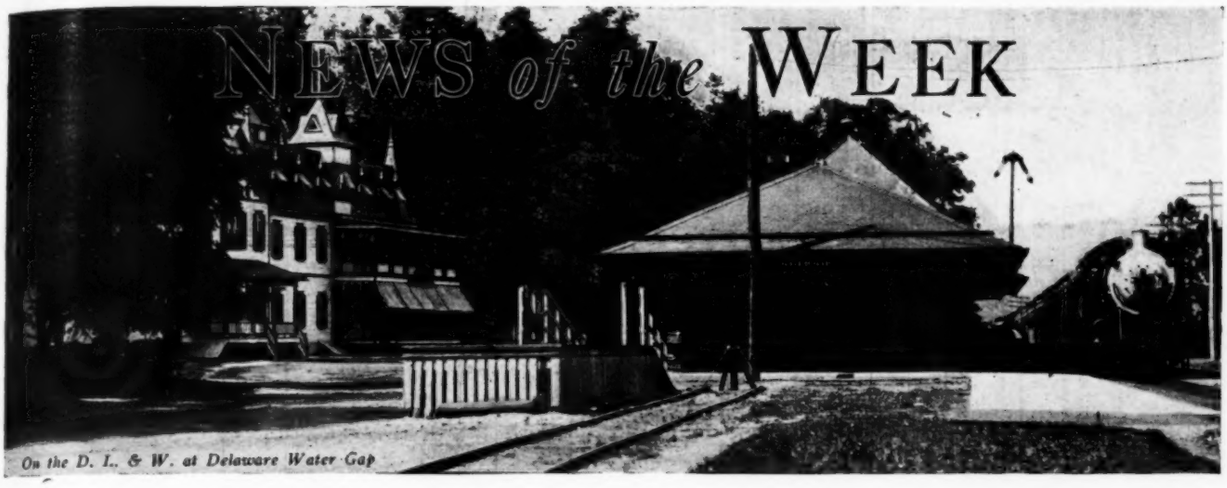
The Casey Jones story, after languishing for 28 years as a tradition and a popular song, threatens to become the subject of legal controversy. Mrs. J. L. Jones, Casey's widow, has brought suit for $150,000 against a moving picture producing company on the West Coast for alleged exploitation of photographs of herself and her child in connection with a moving picture story that uses the railroad exploits of Casey as its basis, according to newspaper reports. The prosecution of the case is being directed by Earl Brewer, former governor of Mississippi, who has retained William Gibbs McAdoo, former director general of railroads, as counsel.

Again, the Pass-Holder's Muse

Abraham Lincoln, back in the palmy days of free transportation for almost everyone, was not alone in turning a neat metaphor at the beginning of a new year. The receipt of an annual pass on the Lafayette, Muncie & Bloomington, which is now a part of the New York, Chicago & St. Louis, in the first few days of 1879 caused Mr. Stein the editor of the Lafayette (Ind.) Courier, to thank the railroad in this wise:

Oh, Chapman! Oh, Waldron! What's this I see?
A pass east and west o'er the L. M. & B.!
A pass east and west for the year '79,
Duly drafted, signed, sealed and delivered to Stein!
Now fill up the goblet brimfull to the donors—
May their lives be as brimfull with fortune and honors!
And when they peg out (can I wish them ought sweeter?)
May they each have a pass to hand to St. Peter.

NEWS of the WEEK



On the D. L. & W. at Delaware Water Gap

THE NORFOLK & WESTERN has made a general advance of five per cent in the wages of employes in the mechanical department, taking effect on February 1.

THE ACCOUNTING DEPARTMENT of the Central Region of the Pennsylvania is being centralized at Pittsburgh, Pa., following the same plan as that noted in a recent news item in connection with the Eastern region of the same road; and about 100 employees in Buffalo, N. Y. and Cleveland, Ohio, have been notified that their work is to be transferred to Pittsburgh.

FIVE MEMBERS OF TWO TRAIN CREWS and one express messenger were killed near Henderson, Ky., on February 1, about 4 a.m. when the eastbound Louisville Limited of the Louisville, Henderson & St. Louis, Train No. 146 collided with a westbound freight train. Both locomotives and a baggage car were wrecked and were partly destroyed by fire. No passenger was reported seriously injured.

DECENTRALIZATION OF THE INTERSTATE COMMERCE COMMISSION by the establishment of regional commissions in the various rate-making districts of the country is provided for by a bill which has been introduced in the House by Representative Garber, of Oklahoma. The bill would also authorize the commission to delegate authority to any member of the commission, his acts to be subject to review on appeal to a division of five members, acting as the appelate division, at Washington.

THE ST. LOUIS-SAN FRANCISCO reports that during 1928, thirty per cent of the accidents involving automobiles and trains on that road resulted from automobiles driving into the sides of locomotives or cars—or 132 out of the total of 444.

THE FOREST PRODUCTS LABORATORY, Madison, Wis., will give a one-week course of instruction in box and crate construction, beginning April 1. The class will be limited to 20 men. These courses, which are given from time to time, are planned to aid anyone engaged in the manufacture, use or sale of shipping containers. Formal lectures give way, so far as possible, to demonstrations, tests and discussions in which members of the class can participate.

THE "CHARLES HENRY MARKHAM FUND," in honor of the chairman of the board of the Illinois Central, was established at the University of Chicago on January 29 when an anonymous donor, a Chicago business man, gave the school $250,000 as a memorial in admiration for the railroad executive's achievements. The income from the fund will be devoted to the support of teaching, research and clinical activities of the departments of medicine and surgery at the university, including medical and surgical care and the hospitalization of patients.

New York Railroad Club, February Meeting

The New York Railroad Club will hold its next meeting on February 15 at the Engineering Societies' building, New York. A. G. Pack, chief inspector of the Bureau of Locomotive Inspection, Interstate Commerce Commission, will be the chief speaker, his subject to be "Railroad Transportation; the Foundation Stone of Modern Civilization." The Delaware & Hudson quartet will provide musical entertainment.

Wage Statistics for November

Class I railways reported to the Interstate Commerce Commission a total of 1,680,459 employees as of the middle of the month of November, 1928, and their total compensation for the month was $238,217,093, according to the Interstate Commerce Commission's monthly summary of wage statistics. Compared with the returns for the corresponding month of 1927, this statement shows a decrease of 2.81 per cent in men and of 0.66 per cent in compensation.

N. Y. C. Seeks to Straighten Route on Putnam Division

The New York Central is seeking permission from the board of trustees of Tarrytown, N. Y., and other stations involved, for the abandonment of that part of its tracks on the Putnam division of its road between East View and Buckout's Crossing, N. Y. In abandoning this section, the Central plans to straighten its route and eliminate a dangerous curve by the construction of a new line between East View and Hawthorne at a cost of several million dollars.

Three stations would be discontinued if the abandonment plans are approved. They are the Tarrytown Heights, Tower Hill and Pocantico Hills stations.

Northern Pacific Land Grant Investigation

A joint resolution to extend to June 30, 1930, the period within which the Secretary of the Interior is directed to withhold his approval of the adjustment of the Northern Pacific land grants, as provided by a resolution approved on June 5, 1924, was introduced in the House on January 31 by Representative Colton. The resolution also provides that the present members of the joint committee of Congress created to investigate the question of the land grants, if re-elected to the Seventy-First Congress, shall continue to serve until the end of the first regular session of the Seventy-First Congress, at which time the joint committee shall cease to exist.

Pullman Safety Campaign

After four successful annual "No-Accidents-in-May" safety campaigns, the Pullman Company has broadened its plan and has now started a 365 days' contest in the elimination of accidents. E. F. Carry, president of the company, has offered two $1,000 trophies for the contest, one for the operating department and the other for the repair shops. The eight zones will be charged with the number of casualties reportable to the Interstate Commerce Commission and will be ranked according to their respective casualty rates; that is, the number of casualties (the number of persons killed and the number receiving three-day injuries) per 1,000,000 hours worked.

Motor Transport Regional Committee No. 1 Meets

Approximately 50 representatives of railroads in the Southeast, comprising

(*Continued on page 386*)

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1928

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
Akron, Canton & Youngstown	Dec.	171	$264,257	$173	$274,433	$67,199	$26,451	$13,847	$76,330	$15,673	$199,500	72.7	$74,933	$59,282	$29,344	$40,577
	12 mos.	171	3,415,283	2,650	3,538,026	665,729	348,785	154,001	925,838	171,684	2,263,549	64.0	1,274,477	1,101,631	722,461	584,010
Atchison, Topeka & Santa Fe	Dec.	9,423	12,098,392	2,864,819	16,877,057	2,042,675	3,338,958	409,411	4,835,337	517,806	11,042,857	65.4	5,834,200	4,757,407	4,833,119	2,539,986
	12 mos.	9,428	153,724,417	34,683,537	206,277,070	34,557,889	39,994,346	4,825,145	59,068,284	5,088,305	142,764,799	69.2	63,512,271	47,549,122	47,553,763	45,893,631
Gulf, Colorado & Santa Fe	Dec.	1,944	2,294,481	201,892	2,605,252	353,583	456,186	54,148	786,677	73,861	1,692,823	65.0	912,429	789,530	672,825	403,483
	12 mos.	1,944	24,079,802	2,382,309	28,099,317	4,504,324	5,381,763	668,918	8,860,705	854,971	19,990,924	71.1	8,108,393	6,789,212	5,293,466	5,959,907
Panhandle & Santa Fe	Dec.	1,024	993,336	123,772	1,205,408	145,457	203,001	12,071	241,050	31,561	629,663	52.2	575,745	498,537	421,694	366,103
	12 mos.	1,023	11,014,422	1,305,731	13,256,450	2,723,885	2,539,459	146,525	3,745,705	336,074	9,236,532	69.7	4,019,918	3,479,774	2,485,297	2,808,594
Atlanta & West Point	Dec.	93	164,758	59,420	262,423	44,087	51,075	12,775	74,055	15,745	202,081	77.0	60,342	38,274	20,806	—19,136
	12 mos.	93	1,997,024	689,483	3,086,039	369,971	540,951	151,704	1,085,018	164,105	2,368,070	76.7	717,969	526,500	333,491	351,417
Western of Alabama	Dec.	133	188,825	61,964	279,805	59,149	61,720	12,136	85,176	14,153	236,166	84.4	43,639	17,968	20,478	55,811
	12 mos.	133	2,245,196	683,470	3,253,606	471,907	611,598	149,696	986,305	171,952	2,438,834	75.0	814,772	583,071	679,581	593,593
Atlanta, Birmingham & Coast	Dec.	639	314,027	29,556	390,916	88,884	80,132	29,138	156,371	17,790	382,501	97.8	8,415	—26,567	—43,726	—23,660
	12 mos.	639	3,961,996	338,541	4,798,168	1,050,799	974,204	347,871	1,887,747	226,996	4,614,988	96.2	183,180	—17,650	—188,371	—66,145
Atlantic Coast Line	Dec.	5,135	4,582,536	983,637	6,262,544	692,186	1,067,005	203,454	2,148,651	176,438	4,331,909	69.2	1,930,635	1,309,556	1,286,091	601,765
	12 mos.	5,117	52,019,283	13,065,378	71,393,170	10,935,259	14,812,874	2,125,843	25,403,745	2,100,248	55,966,058	78.4	15,427,112	9,586,447	9,895,362	10,273,934
Charleston & Western Carolina	Dec.	342	231,973	13,763	256,809	29,150	25,501	8,937	92,442	7,332	163,408	63.6	93,401	67,875	62,612	12,306
	12 mos.	342	3,003,951	152,351	3,279,890	591,423	510,464	88,872	1,177,921	86,278	2,454,711	74.8	825,179	578,283	546,531	504,574
Baltimore & Ohio	Dec.	5,639	15,415,147	1,942,288	18,814,183	1,490,685	3,726,597	503,212	6,926,812	657,849	13,459,277	71.5	5,354,906	3,966,920	3,692,681	1,177,480
	12 mos.	5,637	197,215,444	23,712,131	236,818,681	26,895,746	47,404,095	5,748,601	82,429,731	7,958,369	172,550,868	72.9	64,267,813	52,310,490	49,387,716	44,818,197
Baltimore & Ohio Chicago Term.	Dec.	82	.....	.....	306,885	18,895	42,308	2,321	147,791	17,308	192,831	62.8	114,054	40,258	139,148	79,687
	12 mos.	82	.....	.....	4,356,197	447,102	492,410	29,244	2,098,605	196,292	3,293,667	75.6	1,062,530	300,775	1,453,033	1,204,190
Staten Island Rapid Transit	Dec.	23	109,932	118,771	242,433	25,128	12,988	2,219	108,271	16,005	164,611	67.9	77,822	60,656	22,715	—31,117
	12 mos.	23	1,356,544	1,507,346	3,127,661	364,634	225,119	25,679	1,294,936	192,807	2,103,175	67.2	1,024,486	798,612	349,650	299,186
Bangor & Aroostook	Dec.	613	490,798	68,463	591,720	101,920	193,619	5,929	159,884	32,158	495,634	83.8	96,086	56,305	99,696	113,141
	12 mos.	613	6,227,533	650,587	7,199,222	1,313,165	1,414,230	71,226	1,797,966	316,458	4,950,505	68.8	2,248,717	1,673,858	1,899,190	2,086,303
Belt Ry. Co. of Chicago	Dec.	41	.....	.....	635,705	88,273	75,549	3,510	329,872	14,195	511,399	80.4	124,306	77,046	137,381	142,259
	12 mos.	41	.....	.....	8,152,394	813,022	845,920	45,044	3,739,796	157,403	5,601,185	68.7	2,551,209	1,907,859	1,760,958	1,709,314
Bessemer & Lake Erie	Dec.	224	817,885	8,571	848,083	131,125	188,819	15,177	275,401	44,549	642,350	75.7	205,733	—310,498	—261,809	—187,109
	12 mos.	224	15,449,595	114,115	15,794,736	1,306,724	3,670,585	174,391	3,749,781	419,721	9,250,805	58.6	6,543,931	5,117,634	5,242,928	3,521,747
Bingham & Garfield	Dec.	33	42,707	.....	44,590	10,367	4,639	1,786	11,523	4,865	33,315	74.7	11,274	6,921	24,289	14,648
	12 mos.	33	468,045	40	482,993	107,452	82,047	17,311	122,624	53,005	383,915	79.5	99,077	11,993	216,751	193,564
Boston & Maine	Dec.	2,102	4,007,779	1,404,489	6,287,395	1,002,991	1,051,845	88,653	2,422,505	192,572	4,778,397	76.0	1,508,998	1,079,070	909,016	—846,173
	12 mos.	2,111	50,396,981	16,988,944	76,624,238	12,486,921	13,405,797	1,000,674	27,720,721	2,609,294	57,429,323	75.0	19,194,915	15,235,377	12,802,970	9,500,773
Brooklyn Eastern Dist. Terminal	Dec.	9	109,461	.....	118,142	6,502	13,164	300	44,649	8,341	72,956	61.8	45,186	37,674	37,674	21,936
	12 mos.	9	1,416,806	.....	1,471,638	107,922	164,602	6,222	528,623	90,126	897,495	61.0	574,143	476,122	477,082	422,792
Buffalo & Susquehanna	Dec.	253	148,803	1,018	161,550	26,968	40,957	1,716	48,702	8,110	126,453	78.3	35,097	31,332	52,752	25,869
	12 mos.	253	1,520,768	13,904	1,632,984	327,238	511,741	22,808	513,453	90,934	1,466,076	89.8	166,908	141,143	321,448	161,405
Buffalo, Rochester & Pittsburgh	Dec.	601	1,233,470	85,033	1,368,924	117,094	468,132	33,625	527,085	48,569	1,189,626	86.9	179,298	148,069	171,444	214,236
	12 mos.	601	15,459,926	920,264	16,966,504	2,137,063	4,412,392	359,929	6,421,575	505,780	13,848,359	81.6	3,118,145	2,616,711	2,787,637	1,920,665
Canadian Pacific Lines in Maine	Dec.	233	271,538	40,051	325,206	38,296	63,224	7,807	154,687	4,582	268,596	82.6	56,610	39,196	3,752	—36,281
	12 mos.	233	2,030,552	360,851	2,552,877	675,821	497,995	72,271	1,146,970	51,602	2,444,659	95.7	108,218	—69,196	—319,991	—346,405
Canadian Pacific Lines in Vermont	Dec.	85	112,816	34,919	168,194	22,336	29,415	2,221	108,116	2,766	164,854	98.0	3,340	3,663	—31,215	—470,936
	12 mos.	85	1,321,252	456,728	2,037,925	1,073,932	398,062	21,507	1,185,221	23,939	2,698,434	132.4	—660,509	—708,886	—1,120,738	—467,785
Central of Georgia	Dec.	1,944	1,506,409	295,086	2,004,713	230,976	365,576	75,290	766,449	83,243	1,522,017	75.9	482,696	393,505	375,032	242,607
	12 mos.	1,917	19,012,011	3,729,077	25,140,868	3,161,076	4,449,345	860,460	9,524,259	1,098,544	19,208,787	76.4	5,932,081	4,412,473	4,456,777	5,051,073
Central New Jersey	Dec.	690	3,681,870	691,714	4,655,521	505,084	1,065,682	49,151	1,941,986	126,354	3,712,761	79.7	942,760	600,387	460,882	746,937
	12 mos.	690	45,563,716	8,866,536	58,002,057	5,879,478	12,041,766	647,136	21,684,241	1,577,047	42,122,160	72.6	15,879,897	10,803,120	9,385,057	10,383,653
Central Vermont	Dec.		Not yet filed.													
	12 mos.		Not yet filed.													
Chesapeake & Ohio	Dec.		Not yet filed.													
	12 mos.		Not yet filed.													
Chicago & Alton	Dec.	1,028	1,609,255	490,969	2,386,852	276,435	489,056	77,669	908,673	37,390	1,800,208	75.4	586,644	543,750	357,430	446,616
	12 mos.	1,028	20,102,388	5,603,098	28,540,347	3,665,973	6,168,578	951,266	10,787,690	723,721	22,422,960	78.6	6,117,387	4,910,776	2,750,872	2,733,521
Chicago & Eastern Illinois	Dec.	945	1,605,207	329,271	2,133,606	146,709	413,754	66,623	807,673	70,375	1,519,248	71.2	614,358	450,175	308,870	201,791
	12 mos.	945	19,183,919	3,605,556	24,893,573	2,880,886	4,996,568	989,759	9,567,085	820,217	19,420,758	78.0	5,472,815	3,882,054	2,200,674	2,291,709
Chicago-Illinois Midland	Dec.	133	304,304	7,254	318,036	37,031	52,071	16,703	69,387	21,939	196,973	61.9	121,063	108,354	108,184	93,824
	12 mos.	133	2,591,675	81,546	2,736,600	441,885	543,588	195,388	748,825	206,471	2,133,543	78.0	603,057	508,563	530,715	—503,044
Chicago & North Western	Dec.	8,463	7,607,984	2,058,870	11,467,251	2,891,306	2,216,331	222,865	4,502,451	365,838	10,220,811	89.1	1,246,440	157,885	50,016	—71,054
	12 mos.	8,463	111,417,796	23,579,050	152,089,755	23,461,939	28,382,395	3,049,508	56,763,999	4,435,319	116,638,908	76.7	35,450,847	25,819,860	23,225,683	20,257,694
Chicago, Burlington & Quincy	Dec.	9,374	9,954,223	1,572,829	13,056,466	2,187,971	2,616,284	247,502	4,387,685	371,506	9,874,224	75.6	3,182,242	2,408,664	2,104,544	673,975
	12 mos.	9,375	126,952,879	19,715,276	162,891,409	25,515,422	27,197,586	3,275,345	52,922,445	4,411,170	114,191,159	70.1	48,700,250	37,474,257	32,912,367	28,143,308

Revenues and Expenses of Railways

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
Chicago, Burlington & Quincy	Dec.	9,374	9,954,223	1,572,829	13,056,466	2,187,971	2,616,284	247,502	4,387,685	371,506	9,874,224	75.6	48,700,250	37,474,257	32,912,367	28,143,308
	12 mos.	9,375	126,952,879	19,715,276	162,891,409	25,515,422	27,197,586	3,275,345	52,922,445	4,411,170	114,191,159	70.1				
Chicago Great Western	Dec.	1,495	$1,457,032	$263,678	$1,913,338	$204,655	$285,622	$74,811	$791,873	$68,221	$1,437,420	75.1	$475,918	$385,298	$241,889	$76,945
	12 mos.	1,495	19,891,568	2,935,710	24,871,023	3,294,815	4,357,831	974,842	9,969,368	690,242	19,426,521	78.1	5,444,502	4,364,400	2,510,393	1,962,446
Chicago, Indianapolis & Louisville	Dec.	650	1,242,515	171,763	1,570,985	170,885	269,320	40,270	543,136	34,900	1,070,812	68.2	500,173	366,298	260,585	81,450
	12 mos.	648	14,467,994	2,137,571	18,381,006	1,789,592	3,663,862	487,177	6,655,512	437,090	13,185,808	71.7	5,195,198	4,129,322	2,696,936	2,822,709
Chicago, Mil., St. Paul & Pacific	Dec.	11,251	10,106,088	1,548,067	13,158,317	1,328,250	2,449,438	283,016	4,848,305	457,215	9,439,351	71.7	3,718,966	2,634,203	2,216,835	—15,672
	12 mos.	11,251	136,226,421	18,090,531	170,554,899	27,403,672	29,955,411	3,677,751	58,889,167	4,422,225	125,240,631	73.4	45,314,268	35,070,137	29,119,053	14,072,934
Chicago River & Indiana	Dec.	20	.....	.....	556,489	43,040	48,152	744	179,825	—23,155	248,606	44.7	307,883	262,021	337,759	159,900
	12 mos.	20	.....	.....	6,852,263	688,795	690,494	9,400	2,467,078	166,553	4,022,320	58.7	2,829,943	2,303,933	3,435,220	3,153,260
Chicago, Rock Island & Pacific	Dec.	7,564	8,158,790	1,708,570	10,985,127	1,393,212	2,023,253	244,358	4,069,552	213,652	7,967,766	72.5	3,017,361	2,267,496	1,900,829	2,227,233
	12 mos.	7,566	103,184,181	19,290,338	134,316,611	18,317,070	25,867,470	2,903,804	47,854,234	3,929,865	98,853,863	73.6	35,462,748	27,335,698	22,395,774	21,927,425
Chicago, Rock Island & Gulf	Dec.	516	509,641	68,743	625,341	113,812	63,535	19,135	194,021	18,223	408,736	65.4	216,605	177,940	148,647	171,411
	12 mos.	516	5,574,727	769,260	6,915,993	856,454	730,625	242,585	2,378,949	210,985	4,412,477	63.8	2,503,516	2,177,507	1,870,741	1,509,299
Chic., St. Paul, Minn. & Omaha	Dec.	1,746	1,618,595	344,683	2,181,795	517,497	561,614	42,326	963,251	77,903	2,174,370	99.7	7,425	—116,440	—207,241	109,183
	12 mos.	1,746	20,607,222	4,190,126	27,063,052	4,878,658	5,170,012	489,510	11,408,480	937,943	22,988,963	85.0	4,074,089	2,679,351	1,857,815	2,679,421
Clinchfield Railroad	Dec.	309	518,027	16,203	545,723	48,699	122,134	21,497	117,012	16,192	325,839	59.7	219,884	144,622	238,972	176,345
	12 mos.	309	6,533,304	193,689	6,870,121	692,479	1,587,517	264,165	1,452,015	206,778	4,201,066	61.1	2,669,055	1,788,330	3,000,430	3,255,029
Colorado & Southern	Dec.	1,035	870,190	85,713	1,060,353	122,484	220,596	13,848	351,541	44,628	748,290	70.6	312,063	184,070	160,297	—100,622
	12 mos.	1,040	10,073,171	1,202,568	12,303,314	1,967,554	2,340,855	176,374	4,189,801	506,751	9,208,703	74.8	3,094,611	2,200,141	1,957,437	1,214,511
Ft. Worth & Denver City	Dec.	695	817,538	177,302	1,074,745	85,588	181,178	19,377	362,928	39,347	694,371	64.6	380,374	326,159	323,517	306,619
	12 mos.	621	8,838,013	1,941,058	11,601,560	1,443,587	1,665,244	252,920	3,378,536	456,347	7,219,593	62.2	4,381,967	3,708,216	3,651,576	3,212,882
Wichita Valley	Dec.	271	139,566	12,828	163,114	41,369	9,884	18	52,968	1,700	105,010	64.4	58,104	53,678	34,688	56,983
	12 mos.	271	1,497,598	150,105	1,752,861	369,854	90,039	426	510,466	21,374	983,426	56.1	769,435	672,061	388,557	509,324
Columbus & Greenville	Dec.	167	140,990	30,615	181,559	34,369	18,930	3,718	65,482	13,109	135,578	74.7	45,981	36,691	22,381	13,611
	12 mos.	167	1,487,420	242,748	1,829,576	469,588	217,564	44,314	629,458	136,556	1,496,116	81.8	333,460	289,633	133,978	87,677
Conemaugh & Black Lick	Dec.	22	64,535	.....	154,024	4,641	30,849	1,948	82,123	6,779	126,340	82.0	27,684	16,557	1,455	12,386
	12 mos.	22	1,030,091	.....	1,873,359	157,505	337,506	11,923	1,025,162	43,926	1,576,022	84.1	297,337	275,210	255,659	50,200
Delaware & Hudson	Dec.	881	2,716,594	252,136	3,251,806	498,002	873,748	53,420	1,274,827	165,617	2,894,413	89.0	—1,487,500	1,844,676	1,838,306	274,518
	12 mos.	881	33,628,011	3,496,564	40,229,715	4,717,159	9,373,536	650,077	14,660,096	1,956,731	31,585,665	78.5	8,644,050	7,583,019	7,662,966	6,710,504
Delaware, Lackawanna & Western	Dec.	998	4,941,486	1,008,752	6,793,414	523,836	1,131,313	138,312	2,733,141	175,510	4,750,465	69.9	2,042,949	1,730,838	1,726,636	1,158,871
	12 mos.	998	59,709,832	12,003,781	81,138,442	7,955,692	13,797,824	1,663,476	31,798,945	2,152,903	57,986,008	71.5	23,152,434	16,749,122	17,110,545	17,352,617
Denver & Rio Grande Western	Dec.	2,562	2,333,794	244,805	2,799,915	244,703	550,389	62,220	894,681	90,639	1,851,019	66.1	948,896	748,720	808,260	498,262
	12 mos.	2,557	27,041,241	3,627,272	33,200,656	6,178,430	6,164,141	702,899	10,003,469	1,047,754	24,442,415	73.6	8,758,241	6,455,873	7,094,772	6,397,734
Denver & Salt Lake	Dec.	232	325,450	19,480	359,429	42,409	85,356	2,080	57,393	12,376	199,614	55.5	159,815	126,245	133,589	135,225
	12 mos.	235	3,540,317	254,472	4,011,663	824,448	902,749	22,995	687,739	129,485	2,536,322	63.2	1,475,341	1,343,643	1,428,412	679,907
Detroit & Mackinac	Dec.	300	66,847	12,579	87,979	152,335	38,418	1,919	42,207	6,591	65,442	74.4	153,421	141,702	141,947	—125,980
	12 mos.	306	1,402,591	142,066	1,668,743	324,102	322,664	24,220	537,529	70,650	1,238,997	74.2	429,746	297,647	330,089	155,555
Detroit & Toledo Shore Line	Dec.	50	420,222	.....	426,264	44,277	33,851	10,543	101,600	10,358	200,629	47.0	225,635	183,819	99,892	67,495
	12 mos.	50	4,812,056	.....	4,873,358	544,350	428,583	92,002	1,220,204	113,093	2,398,232	49.2	2,475,126	2,089,783	1,143,275	973,468
Detroit Terminal	Dec.	19	.....	.....	170,812	56,614	20,660	5	94,261	4,536	176,076	103.1	—5,264	—16,467	—16,133	—22,380
	12 mos.	19	.....	.....	2,323,158	264,979	184,044	35	1,030,514	48,826	1,528,398	65.8	794,760	548,580	563,059	395,115
Detroit, Toledo & Ironton	Dec.	495	1,099,904	3,808	1,118,291	121,680	153,576	12,223	281,851	30,021	597,430	63.4	520,861	438,821	369,742	53,739
	12 mos.	495	10,843,511	44,483	11,107,836	1,428,257	1,846,435	147,214	3,151,792	340,127	6,890,590	62.0	4,217,246	3,463,494	2,635,599	635,923
Duluth & Iron Range	Dec.	269	45,801	6,951	69,293	124,108	107,416	1,609	78,606	25,461	336,844	486.1	—267,551	—249,669	—247,038	—253,056
	12 mos.	274	5,683,065	60,115	6,548,686	1,154,315	1,276,732	20,398	1,693,611	249,903	4,394,430	67.1	2,154,256	1,715,403	1,746,384	1,440,966
Duluth, Missabe & Northern	Dec.	307	69,023	5,221	90,047	102,947	187,169	3,510	138,563	27,828	458,556	509.2	—368,509	—739,956	—727,623	—455,046
	12 mos.	307	15,277,651	54,501	17,417,640	1,686,637	2,086,825	36,548	3,126,868	238,828	7,173,998	41.2	10,243,642	8,036,779	8,056,785	6,017,497
Duluth, Winnipeg & Pacific	Dec.	178	162,756	18,880	198,903	37,763	51,213	4,805	69,569	7,255	172,328	86.6	26,575	17,163	21,695	25,726
	12 mos.	178	2,251,909	185,857	2,573,188	475,116	581,135	57,456	886,121	91,843	2,116,248	82.2	456,940	326,795	316,027	364,609
Elgin, Joliet & Eastern	Dec.	406	1,680,694	8	1,851,550	194,039	379,867	14,249	717,394	75,029	1,378,512	74.5	473,038	—352,107	—504,586	—65,808
	12 mos.	456	22,382,985	197	24,602,240	2,514,953	4,942,275	176,591	8,451,875	700,750	16,774,802	68.2	7,827,438	5,658,948	3,773,578	4,178,780
Erie Railroad	Dec.	2,047	7,419,289	881,870	9,147,376	796,142	2,081,305	169,045	3,652,447	320,537	7,060,864	77.2	2,086,512	1,747,187	1,617,041	—810,387
	12 mos.	2,047	90,361,107	10,675,085	110,091,920	13,226,915	24,526,310	2,072,854	42,617,325	3,551,658	86,469,389	78.5	23,622,531	19,253,298	18,434,210	12,125,137
Chicago & Erie	Dec.	269	1,060,774	52,559	1,225,080	206,915	149,752	25,411	390,271	48,837	820,249	67.0	404,831	343,406	7,380	66,610
	12 mos.	269	13,129,290	579,180	14,884,622	2,011,389	1,759,233	305,580	4,336,915	489,151	8,893,578	59.8	5,991,044	5,279,972	1,612,949	835,563
New Jersey & New York	Dec.	45	28,360	96,765	132,347	20,976	18,003	1,767	74,977	5,151	120,896	91.3	11,451	7,599	—25,293	—38,635
	12 mos.	45	354,849	1,167,610	1,583,383	213,070	262,877	20,868	843,263	44,434	1,384,431	87.4	198,952	151,990	—248,228	—310,041
N. Y., Susquehanna & Western	Dec.	131	313,036	43,487	394,039	44,313	70,838	5,163	201,459	12,417	334,338	84.8	59,701	30,268	13,139	—79,399
	12 mos.	132	3,963,789	535,013	4,957,022	694,099	694,763	63,256	2,293,733	135,972	3,881,443	78.3	1,075,579	719,283	459,550	165,760
Evansville, Indianapolis & Terre Haute	Dec.	146	155,769	3,991	166,457	27,284	12,864	2,531	58,290	5,826	106,795	64.2	59,662	53,874	21,980	1,451
	12 mos.	146	1,650,558	44,740	1,764,688	305,296	240,682	27,511	688,264	72,632	1,333,860	75.6	430,828	372,783	—495	234,537
Florida East Coast	Dec.	855	649,679	289,045	1,181,395	447,237	142,177	39,836	352,009	37,070	798,191	67.6	383,204	237,296	181,127	135,394
	12 mos.	856	7,734,935	4,358,946	13,874,723	2,459,384	2,136,317	404,654	4,290,761	563,277	9,889,207	71.3	3,985,516	2,196,763	1,426,619	592,205

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1928—CONTINUED

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
Fort Smith & Western	Dec.	249	$125,055	$11,329	$ 143,561	$22,193	$22,230	$6,513	$49,647	$6,383	$106,607	74.3	$36,954	$30,738	$21,063	$17,710
	12 mos.	249	1,355,722	121,724	1,559,773	285,547	323,819	73,048	533,677	82,076	1,288,157	82.6	271,616	208,869	67,034	36,618
Galveston Wharf	Dec.	13	.....	.....	273,525	53,048	5,942	3,390	55,579	13,334	152,539	55.8	120,986	55,070	55,032	10,248
	12 mos.	13	.....	.....	2,334,856	534,798	56,082	48,521	385,595	67,052	1,246,247	53.4	1,088,609	762,693	763,997	384,403
Georgia R. R.	Dec.	328	309,924	67,196	425,690	59,625	95,070	22,502	179,195	23,806	379,414	89.1	46,276	41,152	67,080	62,125
	12 mos.	328	4,145,473	735,783	5,270,783	584,104	1,022,847	280,032	2,241,941	281,082	4,407,202	83.6	863,581	741,141	911,482	1,060,028
Georgia & Florida	Dec.	445	88,658	13,152	110,794	25,124	21,483	8,830	53,435	6,765	115,010	103.8	—4,216	—24,405	—19,453	—2,703
	12 mos.	445	1,367.948	150,098	1,616,576	276,398	245,155	109,220	644,467	97,796	1,371,311	84.8	245,265	127,177	146,664	223,766
Grand Trunk Western	Dec.	345	1,361,660	162,435	1,732,778	186,695	365,513	43,423	646,602	79,039	1,318,469	76.1	414,309	283,809	123,809	—111,695
	12 mos.	345	18,726,187	2,179,882	22,102,547	2,776,755	4,488,143	518,537	7,412,377	784,462	16,067,802	72.7	6,034,745	4,916,997	3,395,699	3,021,356
Atlantic & St. Lawrence	Dec.	166	151,215	31,577	200,756	42,000	55,000	5,000	122,000	2,000	234,000	116.5	—33,244	—48,144	—103,067	—3,897
	12 mos.	166	1,951,713	345,515	2,530,507	671,051	469,624	69,522	1,384,611	95,663	2,715,469	107.3	—184,962	—361,856	—1,042,272	—673,977
Chic., Det. & Canada Gr. Tr. Jct.	Dec.	59	279,975	1,529	334,590	11,324	15,272	4,827	101,917	5,032	137,060	41.0	197,530	180,430	151,030	104,156
	12 mos.	59	3,440,875	16,873	4,020,262	168,404	187,491	57,650	1,168,380	49,918	1,623,701	40.4	2,396,561	2,253,668	1,878,231	1,336,540
Detroit, Grand Haven & Mil.	Dec.	192	555,622	24,130	652,727	83,434	61,374	13,663	303,208	23,821	481,905	73.8	170,822	108,622	—15,578	3,512
	12 mos.	192	8,307,485	304,795	9,304,756	1,242,121	753,718	163,119	3,475,809	236,429	5,851,077	62.9	3,453,679	3,303,344	1,801,346	1,397,714
Great Northern	Dec.	8,388	6,874,052	974,809	8,823,134	1,309,685	1,793,394	284,705	3,311,156	214,983	6,960,161	78.9	1,862,973	1,032,677	946,547	1,840,151
	12 mos.	8,266	103,980,331	11,505,351	126,737,091	18,319,757	18,991,651	2,897,159	39,374,519	2,807,921	83,235,116	65.7	43,501,975	33,190,062	31,294,069	29,202,540
Green Bay & Western	Dec.	234	140,830	4,625	151,527	19,339	23,947	5,646	47,769	3,395	99,971	65.9	51,556	44,212	41,577	38,201
	12 mos.	234	1,657,452	58,691	1,797,564	303,029	256,143	69,036	670,940	34,336	1,333,317	74.1	464,247	358,682	301,534	223,694
Gulf & Ship Island	Dec.	307	183,838	39,034	248,977	57,265	45,428	5,404	102,071	8,108	220,709	88.6	28,268	—27,732	—45,013	—18,507
	12 mos.	307	2,597,232	440,577	3,308,201	743,578	642,183	64,827	1,230,059	96,923	2,814,154	85.1	494,047	121,986	—70,194	—348,895
Gulf, Mobile & Northern	Dec.	733	527,147	31,665	585,137	79,771	85,120	33,072	181,410	30,297	409,976	70.06	175,161	144,578	106,299	68,629
	12 mos.	733	6,825,960	366,989	7,510,346	1,281,315	1,130,943	386,020	2,264,367	333,947	5,400,357	71.91	2,109,989	1,739,642	1,300,332	1,201,666
Hocking Valley	Dec.	348	1,290,819	60,493	1,466,447	177,211	280,036	16,091	401,534	44,351	919,223	62.7	547,224	394,813	448,689	82,914
	12 mos.	348	18,177,574	720,144	20,801,232	2,306,644	3,844,060	201,292	5,784,419	541,414	12,677,629	60.9	8,123,603	6,596,234	5,624,746	4,930,766
Illinois Central	Dec.	5,037	9,870,671	1,926,763	12,770,825	1,227,812	2,895,923	291,916	4,501,264	354,423	9,354,640	73.3	3,416,185	2,509,364	2,430,434	1,713,209
	12 mos.	5,001	119,938,547	21,431,835	152,569,583	18,009,351	35,962,692	3,149,972	54,056,107	4,279,963	116,433,631	76.3	36,135,952	25,852,912	25,761,834	25,615,627
Yazoo & Mississippi Valley	Dec.	1,705	1,862,820	360,840	2,380,113	374,999	371.536	45,134	848,736	63,124	1,709,844	71.8	670,269	558,842	477,155	57,975
	12 mos.	1,708	21,614,078	3,551,778	26,850,679	4,662,000	4,901,298	544,657	9,901,722	773,378	20,851,866	77.7	5,998,813	4,041,101	3,175,465	1,599,071
Illinois Central System	Dec.	6,742	11,743,963	2,292,160	15,165,968	1,602,811	3,270,810	337,050	5,359,139	417,693	11,077,120	73.0	4,088,848	3,068,311	2,907,694	1,770,198
	12 mos.	6,710	141,688,689	25,032,712	179,605,452	22,671,351	40,927,226	3,694,629	64,087,176	5,055,047	137,479,786	76.5	42,125,666	29,873,913	28,917,199	27,176,951
Illinois Terminal	Dec.		Not yet filed.													
	12 mos.		Not yet filed.													
Kansas City, Mexico & Orient	Dec.		Not yet filed.													
	12 mos.		Not yet filed.													
Kansas City, Mex. & O. of Texas	Dec.		Not yet filed.													
	12 mos		Not yet filed.													
Kansas City Southern	Dec.	784	1,290,265	93,704	1,553,974	212,207	216,668	58,056	476,065	87,774	1,049,946	67.6	504,028	498,832	434,117	273,275
	12 mos.	784	15,456,460	1,076,915	18,513,388	2,192,672	3,066,407	699,643	5,612,779	976,498	12,546,033	67.8	5,967,355	4,893,019	4,151,476	4,177,402
Texarkana & Ft. Smith	Dec.	81	227,226	8,309	252,929	33,857	33,784	8,060	70,181	12,037	162,965	64.4	89,964	34,736	—4,242	58,878
	12 mos.	81	2,577,543	91,616	2,910,509	292,383	254,771	84,829	756,330	133,429	1,542,988	53.0	1,367,521	1,177,952	822,092	590,617
Kansas, Oklahoma & Gulf	Dec.	326	294,457	2,899	303,748	69,089	25,509	13,637	73,206	13,941	190,433	62.7	113,315	105,035	85,774	—6,341
	12 mos.	326	3,164,518	36,383	3,266,728	796,348	311,044	137,830	781,793	123,883	2,034,773	62.3	1,231,955	1,107,333	917,834	319,652
Lake Superior & Ishpeming	Dec.	160	53,164	1,393	57,525	24,605	21,430	1,015	34,857	12,703	94,401	164.1	—36,876	—49,949	—52,780	—65,480
	12 mos.	160	2,182,047	17,167	2,517,812	427,310	307,572	8,180	604,122	106,995	1,453,743	57.1	1,064,069	794,011	752,529	655,989
Lake Terminal	Dec.	13	.....	.....	73,655	11,316	15,225	.....	45,803	1,856	74,200	100.7	—545	—4,628	—3,355	—35,598
	12 mos.	13	.....	.....	1,123,497	180,254	227,135	.....	624,124	22,729	1,054,242	93.8	69,255	13,090	44,131	—135,866
Lehigh & Hudson River	Dec.	96	230,398	1,292	240,455	21,156	51,555	2,500	84,205	15,224	174,632	72.6	65,823	51,846	32,973	—10,570
	12 mos.	96	2,679,949	17,928	2,822,846	290,664	418,628	30,398	1,005,442	123,179	1,868,303	66.2	954,543	769,076	522,024	574,097
Lehigh & New England	Dec.	216	384,081	972	388,955	38,090	84,184	4,861	145,023	18,075	290,162	74.6	98,793	94,278	96,708	39,974
	12 mos.	216	5,294,818	15,867	5,392,412	644,686	1,122,030	66,080	1,915,359	207,989	3,955,210	73.3	1,437,202	1,252,324	1,211,313	1,425,133
Lehigh Valley	Dec.	1,361	4,572,006	588,570	5,628,127	266,879	1,392,160	135,480	2,448,398	140,461	4,416,614	78.5	1,211,513	940,732	713,044	558,290
	12 mos.	1,363	59,509,856	6,994,661	71,935,071	6,428,685	14,635,725	1,628,521	29,019,793	1,726,434	53,826,935	74.8	18,108,136	14,411,632	12,315,126	9,835,767
Louisiana & Arkansas	Dec.	301	285,962	12,004	306,248	43,474	41,113	13,128	80,999	13,588	192,293	62.8	113,955	73,155	63,863	31,305
	12 mos.	301	3,645,004	123,993	3,859,960	552,762	634,674	149,189	974,197	136,164	2,443,780	63.3	1,416,180	1,018,638	872,525	430,349
Louisiana Ry. & Nav. Co.	Dec.	338	261,983	11,938	286,403	54,897	28,821	11,209	112,602	10,139	211,928	74.0	74,475	57,083	30,103	9,899
	12 mos.	337	3,146,373	129,147	3,424,537	705,660	402,042	157,685	1,318,098	130,851	2,689,609	78.5	734,928	480,839	162,212	—63,394
Louisiana Ry. & Nav. Co. of Texas	Dec.	206	81,746	4,084	89,873	20,543	10,989	2,934	34,318	5,994	74,778	83.2	15,095	18,010	12,339	—6,830
	12 mos.	206	963,071	44,603	1,051,907	277,392	167,210	36,918	455,213	66,672	1,003,273	95.4	48,634	6,576	—135,741	99,218
Louisville & Nashville	Dec.	5,068	8,596,175	1,485,223	10,875,382	1,684,164	2,371,752	294,554	3,724,145	295,774	8,413,893	77.4	2,461,489	1,843,211	1,929,815	1,049,659
	12 mos.	5,075	110,018,880	17,353,852	135,638,458	21,036,463	30,408,612	2,962,228	46,993,053	4,261,660	106,231,042	78.3	29,407,416	21,782,026	22,205,053	23,876,834

Louisville & Nashville	Dec.	5,068	8,596,175	1,485,223	10,875,382	1,684,164	2,371,752										
	12 mos.	5,075	110,018,880	17,353,852	135,638,458	21,036,463	30,408,612	2,962,228	46,993,053	4,261,660	106,251,042						

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
Louisville, Henderson & St. Louis	Dec.	199	$209,703	$40,048	$271,737	$39,034	$39,267	$8,660	$96,208	$12,119	$196,902	72.5	$74,835	$62,833	$58,270	—$3,082
	12 mos.	199	2,541,715	494,191	3,250,298	592,024	577,202	102,412	1,215,096	140,771	2,646,965	81.4	603,333	454,899	380,353	743,221
Maine Central	Dec.	1,122	1,068,489	285,723	1,517,934	221,313	288,654	15,135	622,381	52,613	1,199,251	79.0	318,683	200,855	197,630	80,898
	12 mos.	1,122	14,121,238	3,328,523	19,301,899	2,911,110	3,712,820	196,109	7,520,461	625,327	14,986,283	77.6	4,315,616	2,977,331	2,704,328	2,452,653
Midland Valley	Dec.	364	263,731	14,284	287,922	92,072	32,956	8,540	83,173	13,988	229,932	79.9	57,990	33,410	6,390	—85,167
	12 mos.	364	3,431,443	182,726	3,725,530	607,921	419,041	94,600	927,914	154,333	2,195,020	58.9	1,530,510	1,343,722	1,023,981	963,071
Minneapolis & St. Louis	Dec.	1,627	968,211	78,068	1,119,295	108,900	226,618	39,989	566,392	41,855	983,309	87.9	135,986	60,652	4,178	—80,398
	12 mos.	1,627	12,774,023	872,628	14,450,531	2,108,293	2,816,750	428,780	6,503,966	526,938	12,381,983	85.7	2,068,548	1,274,927	522,277	184,694
Minneapolis, St. Paul & S. S. Marie	Dec.	4,384	2,937,513	385,268	3,649,950	434,055	649,826	71,658	1,414,924	121,183	2,709,776	74.2	940,174	724,219	558,939	276,448
	12 mos.	4,385	41,473,195	4,988,901	50,291,654	6,921,702	8,708,204	954,015	18,170,478	1,417,439	36,407,029	72.4	13,884,625	10,912,902	9,006,174	8,663,348
Duluth, South Shore & Atlantic	Dec.	573	269,708	64,325	364,198	57,234	63,149	7,071	171,589	11,046	311,612	85.6	52,586	19,113	7,042	—2,568
	12 mos.	577	3,890,952	710,839	5,045,858	919,568	809,183	93,708	2,136,393	131,432	4,132,799	81.9	913,059	513,560	327,475	516,015
Spokane International	Dec.	165	67,475	11,683	86,966	8,250	2,751	3,804	34,258	6,348	56,296	64.7	30,670	25,788	20,034	20,755
	12 mos.	165	981,595	128,462	1,195,321	182,524	99,403	42,830	388,655	75,942	802,459	67.1	392,862	328,049	240,326	246,195
Mississippi Central	Dec.	161	115,235	8,001	127,584	21,520	23,355	9,235	32,457	7,779	88,420	69.3	39,164	23,791	28,268	24,314
	12 mos.	161	1,543,415	91,326	1,691,523	263,614	273,578	114,079	444,627	95,111	1,184,998	70.1	506,525	384,994	386,057	370,318
Missouri & North Arkansas	Dec.	364	105,867	11,331	126,430	28,874	18,858	9,452	54,448	7,449	119,640	94.6	6,790	4,300	—6,822	—34,633
	12 mos.	364	1,416,168	133,088	1,654,466	399,476	231,857	115,410	663,961	98,687	1,512,075	91.4	142,391	111,260	—27,657	—43,727
Missouri-Kansas-Texas Lines	Dec.	3,188	3,868,884	600,226	4,909,502	793,835	751,632	116,402	1,514,379	182,537	3,371,393	68.7	1,538,109	1,317,472	1,099,154	808,274
	12 mos.	3,188	45,262,653	6,767,529	56,549,119	7,861,520	10,143,558	1,379,158	16,920,529	2,447,447	38,933,816	68.8	17,615,303	14,523,915	12,204,471	11,699,973
Missouri Pacific	Dec.	7,461	8,790,696	1,135,792	10,853,596	1,914,879	1,883,154	293,215	3,905,756	366,063	8,277,738	76.3	2,575,858	2,008,584	1,559,044	921,770
	12 mos.	7,444	107,388,215	13,552,824	131,576,525	21,588,903	24,276,306	3,559,605	45,366,529	4,489,205	99,091,201	75.3	32,485,324	26,633,967	21,347,536	16,899,498
Gulf Coast Lines	Dec.	1,026	904,726	159,485	1,143,954	148,006	180,247	45,585	372,145	66,993	808,555	70.68	335,399	284,742	256,034	—137,971
	12 mos.	1,023	12,234,678	1,656,001	14,713,741	2,450,282	2,558,335	498,457	4,361,474	727,470	10,543,520	71.65	4,170,221	3,584,732	2,943,821	1,910,674
International-Great Northern	Dec.	1,159	1,167,254	214,223	1,579,869	217,449	365,862	34,412	657,286	65,169	1,314,313	83.19	265,556	230,855	127,916	74,843
	12 mos.	1,159	14,961,046	2,217,899	18,855,805	2,871,501	3,211,774	432,197	7,455,138	800,971	14,714,453	78.04	4,141,352	3,632,565	2,627,076	2,178,180
San Antonio, Uvalde & Gulf	Dec.	318	98,999	16,519	127,726	49,074	17,873	4,966	40,495	7,587	120,642	94.5	7,084	—1,180	—28,366	—18,520
	12 mos.	318	1,771,843	208,215	2,136,335	479,743	268,354	65,162	660,595	89,839	1,568,995	73.4	567,340	516,991	169,341	95,020
Texas & Pacific	Dec.	2,015	3,614,991	584,719	4,563,360	901,935	688,622	80,299	1,402,424	121,608	3,203,850	70.2	1,359,510	1,191,107	886,225	890,867
	12 mos.	2,015	41,694,282	5,971,135	50,795,832	8,399,109	7,843,613	967,698	15,950,920	1,362,782	34,536,240	68.0	16,259,592	13,996,989	10,446,475	6,497,569
Mobile & Ohio	Dec.	1,159	1,229,127	100,781	1,414,435	180,533	273,768	56,560	536,641	53,269	1,100,881	77.8	313,554	281,518	251,888	242,777
	12 mos.	1,160	15,266,572	1,149,730	17,369,129	2,525,930	3,056,391	674,364	6,382,763	588,331	13,199,308	76.0	4,169,821	3,151,543	2,647,695	2,931,071
Monongahela	Dec.	171	559,847	12,581	576,075	63,298	75,374	997	156,314	10,703	303,872	52.7	272,203	252,760	152,212	96,215
	12 mos.	171	6,965,856	171,707	7,191,161	968,298	890,374	13,289	1,825,340	127,030	3,806,658	52.9	3,384,503	3,104,520	1,942,474	2,240,514
Monongahela Connecting	Dec.	6	.....	.....	171,192	1,381	38,349	300	74,392	3,587	115,247	67.3	55,945	46,302	42,751	10,861
	12 mos.	7	.....	.....	2,129,030	230,304	397,288	4,033	917,532	40,626	1,589,783	74.7	539,247	435,122	414,549	316,163
Montour	Dec.	56	133,225	51	134,725	25,229	54,765	1,233	35,460	7,649	124,336	92.3	10,389	9,067	23,572	60,600
	12 mos.	56	1,710,349	78	1,720,985	286,570	552,344	14,774	395,252	83,904	1,329,077	77.2	391,908	373,920	646,813	427,372
Nashville, Chattanooga & St. Louis	Dec.	1,259	1,329,976	269,296	1,800,197	443,936	409,935	81,600	657,780	79,489	1,680,015	93.3	120,182	87,291	79,447	161,689
	12 mos.	1,259	18,015,059	3,335,146	23,335,033	3,128,239	4,919,654	975,631	8,061,823	956,096	18,127,193	77.7	5,207,840	4,226,778	4,232,896	3,841,261
Nevada Northern	Dec.	165	109,235	6,314	124,922	12,516	10,553	1,069	19,178	5,632	49,120	39.3	75,802	59,857	56,852	12,100
	12 mos.	165	997,297	63,441	1,163,362	158,132	101,301	11,583	188,561	55,489	517,211	44.4	646,151	493,855	482,648	351,125
Newburgh & South Shore	Dec.	6	.....	.....	192,220	46,203	35,133	.....	58,784	7,151	147,271	76.6	44,949	90,389	98,424	—44,515
	12 mos.	6	.....	.....	2,120,539	235,163	484,404	.....	784,162	69,553	1,573,282	74.2	547,257	398,447	445,451	198,474
New Orleans Great Northern	Dec.	276	217,629	18,219	236,146	24,367	28,706	14,775	70,908	12,256	150,992	63.9	85,154	66,082	52,889	43,196
	12 mos.	276	2,906,588	229,547	3,230,330	432,908	491,092	159,310	974,595	137,312	2,196,918	68.0	1,033,412	816,954	581,031	568,776
New Orleans Terminal	Dec.	20	2,588	.....	88,759	10,388	10,157	.....	19,321	1,401	41,267	46.5	47,492	37,259	12,636	10,059
	12 mos.	20	23,274	.....	1,634,033	264,795	96,296	.....	537,463	20,183	918,737	56.2	715,296	586,941	481,102	490,213
New York Central	Dec.	6,906	18,337,334	8,633,163	31,463,928	3,659,328	7,442,916	424,628	11,462,414	1,626,302	21,909,192	69.6	9,554,736	4,550,438	4,351,903	4,157,985
	12 mos.	6,906	234,617,639	96,917,043	381,733,244	50,976,026	81,942,500	5,426,533	133,232,597	10,707,637	288,245,509	75.5	93,487,735	64,218,353	62,224,981	61,823,827
Cincinnati Northern	Dec.	244	310,959	4,527	324,723	39,395	58,816	5,849	106,221	1,133	211,414	65.1	113,309	98,475	93,055	24,108
	12 mos.	244	3,891,947	57,608	4,061,793	497,340	825,980	75,025	1,351,608	120,485	2,874,043	70.8	1,187,750	914,869	670,291	796,818
Cleve., Cinn., Chicago & St. Louis	Dec.	2,397	5,519,169	1,273,879	6,356,744	481,562	1,541,181	146,737	2,099,102	155,381	4,188,593	65.9	2,168,151	2,018,590	2,442,006	616,066
	12 mos.	2,397	67,594,293	14,558,356	88,830,152	9,891,192	19,053,537	1,833,196	32,468,433	2,792,816	66,989,155	75.4	21,840,997	16,895,924	15,622,538	14,603,067
Indiana Harbor Belt	Dec.	130	.....	.....	1,015,997	8,603	98,760	4,874	436,325	26,117	583,693	57.5	432,304	378,999	252,836	71,898
	12 mos.	130	.....	.....	12,722,774	1,170,174	1,328,370	57,705	4,892,926	307,461	7,907,434	62.2	4,815,340	4,049,016	3,361,144	1,749,645
Michigan Central	Dec.	1,858	4,582,642	1,771,346	7,210,898	666,390	1,664,360	146,329	2,491,924	355,266	4,721,498	65.5	2,489,400	1,998,142	1,929,306	1,380,324
	12 mos.	1,858	64,098,144	19,792,567	93,217,493	9,993,462	18,429,412	1,599,588	29,414,898	2,001,533	62,643,935	67.2	30,573,558	24,220,557	23,155,967	20,988,826
Pittsburgh & Lake Erie	Dec.	231	2,218,196	206,254	2,523,897	305,227	657,415	31,765	847,434	19,180	1,870,103	74.1	653,794	428,798	728,517	357,722
	12 mos.	231	27,938,315	2,408,667	31,406,816	4,235,852	9,903,424	336,180	10,137,409	934,696	25,602,990	81.5	5,803,826	3,763,044	7,770,829	8,005,295
New York, Chicago & St. Louis	Dec.	1,690	3,851,453	156,301	4,161,478	378,778	761,274	125,502	1,473,529	61,009	2,781,790	66.9	1,379,688	1,181,036	960,537	1,219,918
	12 mos.	1,690	49,346,205	1,815,134	52,876,520	6,615,575	9,829,183	1,510,301	18,505,513	1,595,971	37,866,536	71.6	15,009,984	12,020,555	9,556,897	9,995,984

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
N. Y., New Haven & Hartford	Dec.	2,131	$5,967,662	$4,230,856	$11,625,671	$1,645,294	$1,708,520	$97,108	$3,542,769	$343,220	$7,522,894	64.7	$4,102,777	$3,315,301	$2,802,996	$1,919,225
	12 mos.	2,148	75,341,448	47,270,778	137,633,053	19,317,596	23,876,299	1,148,267	43,878,799	3,842,749	94,148,641	68.4	43,484,412	35,896,782	29,238,404	25,235,284
New York Connecting	Dec.	20	213,007	.....	250,400	5,144	16,311	.....	75,754	1,517	98,726	39.4	151,674	111,988	88,097	102,237
	12 mos.	20	2,482,580	.....	2,857,741	282,215	154,269	.....	542,550	22,688	1,001,722	35.1	1,856,019	1,377,122	1,068,920	1,243,386
New York, Ontario & Western	Dec.	569	602,422	71,445	836,809	80,107	208,876	19,758	444,463	34,271	792,120	94.7	44,689	12,919	—43,916	—10,130
	12 mos.	569	8,352,947	2,220,542	12,650,717	1,807,764	2,359,985	236,593	5,616,445	408,715	10,496,821	83.0	2,153,896	1,622,786	913,577	1,066,137
Norfolk & Western	Dec.	2,240	8,451,478	517,107	9,308,668	972,457	1,808,472	119,893	2,267,357	296,276	5,457,382	58.6	3,851,286	3,050,972	3,284,637	2,321,619
	12 mos.	2,241	97,501,583	5,726,833	106,947,111	15,475,724	19,933,551	1,360,490	26,608,501	3,110,151	66,521,695	62.2	40,425,416	31,218,145	34,204,058	34,010,951
Norfolk Southern	Dec.	931	565,768	45,339	663,778	87,870	84,195	26,463	260,529	28,673	482,792	72.7	180,986	92,853	73,314	104,928
	12 mos.	931	8,058,745	500,382	9,122,317	1,207,779	1,282,533	329,346	3,393,154	353,308	6,543,270	71.7	2,579,047	1,849,899	1,545,608	1,718,182
Northern Pacific	Dec.	6,771	5,910,135	879,660	7,567,817	700,211	1,356,770	178,349	2,621,335	264,939	5,226,024	69.1	2,341,793	1,576,875	1,880,443	2,077,664
	12 mos.	6,729	81,724,976	10,732,830	101,272,724	12,596,853	18,700,311	2,537,259	32,825,515	3,067,887	70,801,966	69.9	30,470,758	20,761,903	25,088,572	22,592,837
Northwestern Pacific	Dec.	477	207,533	130,333	388,406	129,145	71,943	7,550	257,704	21,635	487,478	125.5	—99,072	—143,337	—151,386	—89,746
	12 mos.	477	3,902,351	1,771,074	6,355,971	1,311,394	1,055,620	107,903	2,984,316	275,716	5,732,204	90.2	623,767	144,302	50,483	613,599
Pennsylvania R. R.	Dec.	10,487	36,094,290	11,066,347	52,890,656	8,191,742	10,756,276	814,457	19,325,522	1,891,225	41,648,673	78.7	11,241,983	8,826,210	7,607,249	2,350,756
	12 mos.	10,487	457,294,397	131,179,771	650,567,316	85,419,898	130,231,307	9,761,214	227,703,832	19,495,966	480,446,634	73.9	170,120,682	132,186,323	117,022,686	103,977,303
Baltimore, Chesapeake & Atlantic	Dec.		Sold at foreclosure sale to Baltimore and Eastern Railroad—Class II road.													
	12 mos.		Sold at foreclosure sale to Baltimore and Eastern Railroad—Class II road.													
Long Island	Dec.	403	845,307	2,068,696	3,128,417	484,006	505,131	28,943	1,309,952	77,518	2,407,285	76.9	721,132	597,354	427,453	443,059
	12 mos.	403	11,605,106	26,460,390	40,532,572	5,281,376	5,649,517	395,813	16,117,641	959,261	28,434,357	70.2	12,098,215	9,390,508	7,542,458	6,162,578
West Jersey & Seashore	Dec.	370	413,030	235,544	687,054	119,097	103,616	4,627	338,940	14,674	581,375	84.6	105,679	105,642	82,468	—264,424
	12 mos.	370	4,882,121	5,074,523	10,484,098	1,537,628	1,479,199	142,903	4,656,014	260,552	8,084,156	77.1	2,399,942	1,328,141	970,615	546,701
Peoria & Pekin Union	Dec.	19	25,030	1,750	145,899	20,130	21,387	6,094	85,606	9,266	142,483	97.7	3,416	—20,692	—6,609	31,500
	12 mos.	19	319,896	20,916	1,907,171	245,947	183,543	48,062	820,947	92,849	1,391,348	72.9	515,823	281,838	543,136	493,162
Pere Marquette	Dec.	2,242	2,888,326	237,062	3,366,939	256,763	744,551	69,010	1,208,409	113,618	2,395,671	71.2	971,268	701,822	607,896	472,580
	12 mos.	2,244	40,032,641	2,968,381	45,761,568	4,911,908	9,127,770	780,702	14,918,086	1,315,836	31,036,347	67.8	14,725,221	11,994,612	10,596,357	9,291,668
Pittsburgh & Shawmut	Dec.	102	149,890	3,716	156,202	36,804	29,427	1,785	41,347	6,698	116,061	74.3	40,141	38,577	39,625	51,888
	12 mos.	102	1,813,621	42,803	1,883,261	286,483	406,191	21,802	523,036	81,440	1,318,952	70.0	564,309	548,854	516,712	465,372
Pittsburgh & West Virginia	Dec.	92	283,454	4,757	323,269	21,572	68,848	16,861	70,655	18,979	207,225	64.1	116,044	75,108	140,738	74,057
	12 mos.	92	4,016,948	62,656	4,473,024	298,482	881,049	186,809	818,317	250,225	2,554,354	57.1	1,918,670	1,312,872	2,218,716	1,906,222
Pittsburgh, Shawmut & Northern	Dec.	198	129,330	1,845	153,057	20,682	67,085	1,407	48,856	6,157	144,187	94.2	8,870	5,934	—1,240	13,509
	12 mos.	198	1,833,416	22,236	1,916,609	402,660	405,014	19,871	602,822	72,018	1,502,385	78.4	414,224	377,703	285,656	178,959
Quincy, Omaha & Kansas City	Dec.	249	41,303	9,815	59,493	17,357	9,630	803	25,598	2,302	55,624	93.5	3,869	—1,292	—3,842	—224
	12 mos.	249	548,090	104,372	734,122	367,417	103,348	8,985	331,641	29,261	838,026	114.2	—103,904	—162,436	—197,073	—179,302
Reading	Dec.	1,171	6,645,741	650,233	7,857,806	1,138,383	1,612,614	80,932	2,945,270	224,165	6,026,353	76.7	1,831,453	1,560,713	1,726,190	839,072
	12 mos.	1,140	77,057,463	7,774,672	89,940,034	12,528,472	20,425,608	1,046,640	33,019,184	2,540,159	69,826,346	77.6	20,113,688	15,581,859	17,098,848	16,790,121
Atlantic City	Dec.	163	108,527	92,581	219,426	61,971	44,583	6,729	155,243	10,558	279,190	127.2	—59,764	—100,783	—125,944	—43,264
	12 mos.	162	1,391,372	2,110,124	3,732,785	842,890	354,064	90,755	2,279,619	78,697	3,651,305	97.8	81,480	—385,045	—721,387	—441,430
Perkiomen	Dec.	41	109,500	2,661	115,451	9,802	6,180	107	49,731	1,217	67,074	58.1	48,377	44,288	37,821	14,403
	12 mos.	41	1,226,446	37,452	1,300,485	188,000	74,359	1,280	575,272	14,961	854,199	65.7	446,286	394,919	314,497	337,005
Port Reading	Dec.	20	155,017	.....	222,560	1,389	8,089	229	77,365	1,510	88,514	39.8	134,046	109,529	32,691	—22,319
	12 mos.	19	1,724,988	.....	2,365,220	227,824	149,899	2,748	811,998	33,093	1,225,380	51.8	1,139,840	958,328	76,456	130,244
Richmond, Fredericksburg & Potomac	Dec.	117	421,453	328,749	1,003,816	75,952	145,005	8,360	309,600	33,815	591,997	59.0	411,819	362,107	329,624	202,347
	12 mos.	117	5,300,624	3,644,558	11,035,433	1,213,918	1,909,382	115,583	3,862,207	428,945	7,800,240	70.7	3,235,193	2,616,546	2,011,879	1,875,648
Rutland	Dec.	413	270,675	74,653	480,827	75,300	115,499	10,146	188,497	19,060	410,261	85.3	70,566	46,588	51,542	44,990
	12 mos.	413	3,737,799	1,230,299	6,626,282	1,312,382	1,221,136	136,834	2,472,797	194,994	5,361,874	80.9	1,264,408	927,690	940,883	435,101
St. Louis-San Francisco	Dec.	5,304	5,013,434	979,677	6,574,979	583,458	1,214,383	126,525	2,306,353	230,852	4,425,603	67.31	2,149,376	1,773,143	1,842,029	2,002,673
	12 mos.	5,263	64,348,611	11,486,778	82,113,691	10,056,315	15,853,701	1,501,288	27,447,279	2,784,868	56,864,091	69.25	25,249,600	20,150,349	20,646,642	21,927,958
Ft. Worth & Rio Grande	Dec.	233	93,196	11,163	117,255	15,844	16,759	3,544	52,388	5,326	92,863	79.2	24,392	20,200	11,993	134
	12 mos.	233	1,029,826	133,092	1,314,322	226,558	234,442	40,647	627,089	62,230	1,180,510	89.8	133,812	84,103	—18,855	—167,770
St. Louis, San Francisco & Texas	Dec.	154	165,526	12,154	182,393	23,102	24,385	5,123	65,564	9,296	127,445	69.9	54,948	53,089	21,527	—8,395
	12 mos.	147	1,738,932	144,687	1,952,838	326,170	312,778	60,230	733,786	91,250	1,520,688	77.9	432,150	394,873	79,127	41,551
St. Louis Southwestern	Dec.	940	1,285,383	88,774	1,454,359	151,615	225,149	69,218	397,232	76,663	928,055	63.8	526,304	435,562	343,163	303,618
	12 mos.	940	16,138,620	1,007,229	17,999,097	2,276,732	2,814,748	825,544	4,705,764	793,275	11,481,764	63.8	6,517,333	5,640,011	4,230,282	3,611,631
St. Louis Southwestern of Texas	Dec.	807	484,453	55,116	597,479	188,549	120,251	28,058	281,372	35,016	659,762	110.4	—62,283	—86,559	—37,954	—21,546
	12 mos.	807	6,385,674	554,212	7,576,668	2,365,376	1,491,901	363,040	3,150,789	413,904	7,848,869	103.6	—272,201	—603,060	—186,864	502,836
San Diego & Arizona	Dec.	156	72,271	22,256	98,434	14,848	16,286	4,463	30,734	9,485	77,242	78.5	21,192	15,237	15,755	2,791
	12 mos.	156	973,584	198,905	1,225,832	211,424	200,079	49,300	346,151	108,012	931,683	76.0	294,149	224,745	223,175	252,887
Seaboard Air Line	Dec.	4,490	3,770,623	848,156	5,114,288	670,041	861,279	199,623	1,766,727	194,711	3,702,343	72.4	1,411,945	1,139,618	1,007,516	557,019
	12 mos.	4,498	43,844,106	7,958,388	57,245,207	6,877,967	9,554,021	2,396,062	21,193,862	2,200,771	42,902,964	74.9	14,342,243	10,785,088	10,055,417	10,388,760

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
San Diego & Arizona	12 mos.	156	973,584	198,905	[illegible]	670,041	861,279	199,623	[illegible]	2,200,771	42,902,964	74.9	[illegible]	[illegible]	[illegible]	[illegible]
	Dec.	4,490	3,770,623	848,156	$5,114,288	6,877,967	9,554,021	2,396,062	21,193,862							
Seaboard Air Line	12 mos.	4,498	43,844,106	7,958,388	$57,245,207											
Southern Ry.	Dec.	6,730	$8,623,630	$2,184,857	$11,861,626	$1,454,529	$1,942,235	$272,379	$3,812,507	$399,930	$7,960,936	67.1	$3,900,690	$3,078,705	$2,962,588	$2,422,251
	12 mos.	6,760	108,640,633	24,016,843	144,116,452	21,050,021	24,870,262	3,111,347	47,572,634	4,341,708	101,887,718	70.7	42,228,734	32,630,354	30,842,555	32,765,062
Alabama Great Southern	Dec.	314	630,597	158,143	851,547	43,654	163,159	23,534	216,882	23,596	477,257	56.0	374,290	293,890	320,151	319,064
	12 mos.	314	7,661,620	1,762,921	10,110,310	1,613,945	1,966,522	267,351	2,947,233	285,180	7,163,284	70.9	2,947,026	2,192,189	2,538,423	2,607,308
Cinn., New Orleans & Tex. Pacific	Dec.	338	1,322,692	293,285	1,728,970	268,415	501,366	55,409	429,921	56,235	1,324,220	76.6	404,750	357,391	339,760	267,439
	12 mos.	338	17,167,623	3,278,612	21,631,726	3,394,079	4,516,044	540,951	5,991,660	636,790	15,239,251	70.4	6,392,475	5,150,245	4,917,528	4,709,507
Georgia Southern & Florida	Dec.	397	289,719	114,127	441,604	42,210	59,906	2,748	147,800	4,108	261,984	59.3	179,620	151,842	151,114	121,277
	12 mos.	398	2,890,018	1,259,651	4,519,309	892,539	886,487	97,765	1,770,464	97,604	3,812,778	84.4	706,531	431,343	435,950	420,254
New Orleans & Northeastern	Dec.	204	369,223	70,703	472,021	41,981	78,512	13,958	111,060	15,841	265,078	56.2	206,943	155,305	106,037	22,820
	12 mos.	204	4,319,902	817,821	5,522,966	750,440	976,297	151,884	1,593,542	176,641	3,697,569	66.9	1,825,397	1,265,691	852,117	978,798
Northern Alabama	Dec.	110	77,231	7,660	88,863	33,177	2,755	2,133	33,234	2,998	74,266	83.6	14,597	8,609	—9,191	1,984
	12 mos.	110	1,039,893	80,745	1,155,423	306,431	35,585	23,575	392,683	33,444	791,438	68.5	363,985	292,249	56,145	198,706
Southern Pacific	Dec.	8,903	11,486,955	3,361,219	16,690,005	1,996,856	2,713,741	398,409	6,124,246	653,396	12,202,773	73.1	4,487,232	3,225,840	2,932,805	3,285,569
	12 mos	8,905	159,642,877	38,850,440	218,885,255	26,984,122	35,227,131	4,920,910	72,705,089	7,869,261	151,212,056	69.1	67,673,199	50,084,426	45,305,883	44,124,518
So. Pacific Steamship Lines	Dec.	....	688,063	18,211	817,782	19,517	204,889	17,812	590,288	38,016	870,522	106.4	—52,740	—56,886	—52,496	27,358
	12 mos.	....	9,129,088	641,013	11,158,183	225,106	2,432,361	216,647	7,119,861	432,825	10,426,800	93.4	731,383	683,741	714,574	1,178,111
Texas & New Orleans	Dec.	4,728	4,287,333	983,872	5,794,358	1,175,475	1,210,283	165,744	2,027,456	254,920	4,843,925	83.6	950,433	748,589	525,710	302,433
	12 mos.	4,728	53,732,214	10,868,090	70,215,413	11,603,498	14,063,129	2,114,806	24,419,607	3,117,983	55,278,769	78.7	14,936,644	10,966,548	8,826,867	6,323,274
Spokane, Portland & Seattle	Dec.	554	579,847	95,008	742,108	108,870	89,374	10,326	249,857	23,180	485,128	65.4	256,980	165,132	151,171	179,020
	12 mos.	554	7,429,692	1,143,067	9,345,584	1,499,936	1,192,143	133,382	2,697,135	276,367	5,853,199	62.6	3,492,385	2,443,807	2,299,251	2,454,087
Tennessee Central	Dec.	296	216,720	19,127	249,860	54,779	22,703	8,048	92,183	12,331	189,933	76.0	59,927	48,273	29,456	—6,879
	12 mos.	296	2,859,595	234,072	3,256,510	687,819	444,865	105,055	1,155,820	153,386	2,545,642	78.2	710,868	622,180	392,711	312,433
Terminal R. R. Assn. of St. L.	Dec.	55	.....	.....	920,694	124,673	80,150	2,423	472,982	25,672	708,460	76.9	212,234	127,109	218,356	326,163
	12 mos.	55	.....	.....	12,777,614	2,054,548	1,042,516	29,633	5,401,818	355,421	8,906,432	69.7	3,871,182	2,701,626	3,710,658	3,944,360
Texas Mexican	Dec.	162	80,403	4,382	91,918	15,745	20,301	3,630	20,731	6,664	66,966	72.8	24,952	21,698	20,802	46,020
	12 mos.	162	1,109,776	50,641	1,248,030	192,002	205,471	46,169	428,719	72,541	943,571	75.6	304,459	245,985	163,659	37,369
Toledo, Peoria & Western	Dec.	239	162,989	919	172,087	15,732	28,671	11,500	63,396	9,208	128,507	74.7	43,590	35,433	22,590	38,607
	12 mos.	239	2,069,221	19,910	2,174,649	403,843	246,276	133,572	760,025	100,928	1,644,644	75.6	530,005	468,924	305,570	70,155
Toledo Terminal	Dec.	28	.....	.....	140,521	843	12,901	575	55,591	11,555	79,779	56.8	60,742	36,271	60,846	52,510
	12 mos.	28	.....	.....	1,517,681	80,451	187,633	6,848	588,917	66,698	930,547	61.3	587,134	376,119	687,566	549,993
Trinity & Brazos Valley	Dec.	367	284,636	9,860	303,809	45,159	32,661	5,456	106,025	11,782	199,836	65.8	103,973	95,535	57,911	4,260
	12 mos.	367	2,530,054	95,140	2,717,457	531,754	403,903	64,439	1,036,133	141,759	2,109,895	77.6	607,562	514,567	201,375	151,926
Ulster & Delaware	Dec.	128	24,775	4,068	56,510	11,910	11,656	1,194	36,680	1,758	63,198	111.8	—6,688	—11,688	—13,376	53,152
	12 mos.	128	468,328	252,508	1,172,434	192,664	182,287	16,810	549,895	52,904	994,560	84.8	177,874	109,471	64,099	34,417
Union R. R. of Penna.	Dec.	45	.....	.....	706,009	70,096	3,659	164	336,299	17,894	428,070	60.6	277,939	249,782	312,752	32,739
	12 mos.	45	.....	.....	10,142,499	1,000,537	2,042,431	1,963	4,345,780	166,570	7,557,239	74.5	2,585,260	2,175,584	3,278,909	1,818,288
Union Pacific	Dec.	3,765	7,172,439	1,185,273	9,230,008	726,922	1,948,248	143,701	2,707,662	334,699	6,005,051	65.1	3,224,957	2,327,442	2,055,832	2,018,054
	12 mos.	3,731	96,869,869	14,986,960	121,971,611	13,035,402	23,992,949	2,139,243	32,445,177	3,957,838	77,711,572	63.7	44,260,039	35,665,386	31,071,696	27,574,669
Oregon Short Line	Dec.	2,539	2,451,553	325,451	3,033,402	207,949	454,236	44,988	856,575	133,325	1,754,335	57.8	1,279,067	911,292	818,809	473,865
	12 mos.	2,539	31,876,836	3,943,800	38,731,874	5,542,801	6,097,566	655,114	10,843,580	1,498,050	25,389,148	65.6	13,342,726	9,897,843	8,574,323	6,936,914
Oregon-Wash. R. R. & Nav.	Dec.	2,365	1,743,359	295,701	2,271,447	274,697	364,865	66,365	867,145	129,904	1,723,346	75.9	548,101	369,321	243,661	247,450
	12 mos.	2,353	23,503,435	3,350,358	29,693,248	5,172,974	4,631,623	906,779	10,766,402	1,527,199	23,387,292	78.8	6,305,956	4,058,226	2,143,474	2,930,745
Los Angeles & Salt Lake	Dec.	1,208	1,472,221	336,604	2,023,623	360,716	342,123	73,630	681,795	81,851	1,622,354	80.2	401,269	244,567	139,324	53,249
	12 mos.	1,209	17,370,650	4,617,372	24,772,513	4,492,380	4,332,070	937,170	7,720,571	936,995	19,768,477	79.8	5,004,036	3,303,433	2,029,502	2,041,061
St. Joseph & Grand Island	Dec.	258	263,102	11,713	295,189	31,343	50,201	3,278	99,214	16,227	200,263	67.8	94,926	85,441	65,519	43,536
	12 mos.	258	3,673,011	140,116	4,073,862	749,803	466,096	42,107	1,358,215	182,220	2,803,846	68.8	1,270,016	1,030,513	771,179	505,908
Utah	Dec.	111	238,168	.....	238,216	43,015	29,471	433	47,461	5,888	126,268	53.0	111,948	99,756	90,959	33,314
	12 mos.	111	1,793,387	108	1,797,413	323,672	445,485	4,581	381,081	69,007	1,223,826	68.1	573,587	472,985	349,561	451,958
Virginian	Dec.	545	1,342,285	34,585	1,451,332	72,629	256,850	13,430	307,203	21,814	669,927	46.2	781,405	576,405	669,446	255,277
	12 mos.	545	17,091,413	416,877	18,480,118	1,861,405	3,809,546	172,493	3,892,597	413,509	10,103,840	54.7	8,376,278	6,489,989	7,096,053	9,075,249
Wabash	Dec.	2,524	5,104,329	637,295	6,214,463	498,835	869,672	173,697	2,296,878	187,731	3,968,637	63.9	2,245,826	1,913,029	1,625,886	804,497
	12 mos.	2,524	58,840,271	7,194,988	71,072,991	9,496,663	11,815,469	2,037,901	26,784,643	2,223,051	52,411,568	73.7	18,661,423	15,595,399	11,950,039	9,611,677
Ann Arbor	Dec.	293	479,622	22,621	525,306	41,822	114,317	14,029	191,721	11,480	373,390	71.1	151,916	117,643	97,121	42,173
	12 mos.	293	5,512,998	223,375	5,965,673	621,135	1,292,441	166,033	2,226,531	136,072	4,425,486	74.2	1,540,187	1,316,944	935,312	780,182
Western Maryland	Dec.	875	1,412,590	27,411	1,481,026	249,678	364,340	43,242	391,451	44,171	1,100,969	74.3	380,057	299,875	324,147	544,978
	12 mos.	862	17,626,032	375,379	18,592,557	2,859,265	3,653,259	502,784	5,040,077	528,678	12,676,171	68.2	5,916,386	4,931,204	5,250,619	6,131,593
Western Pacific	Dec.	1,051	1,206,340	72,802	1,374,138	173,380	216,181	61,395	512,322	52,863	1,053,694	76.7	320,444	194,492	232,666	55,373
	12 mos.	1,050	14,647,031	1,494,645	17,594,075	3,344,713	3,011,619	729,794	6,044,422	562,631	14,206,209	80.7	3,387,866	2,215,799	2,580,011	2,321,483
Wheeling & Lake Erie	Dec.	511	1,361,942	26,371	1,470,136	107,641	400,852	47,479	451,766	63,590	1,056,855	71.9	413,281	348,487	323,722	60,962
	12 mos.	511	19,142,252	314,061	20,705,664	2,539,198	4,523,822	437,258	5,802,265	570,654	13,868,383	67.0	6,837,281	5,154,887	4,975,836	3,048,020
Wichita Falls & Southern	Dec.		Not yet filed.													
	12 mos.		Not yet filed.													

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1928—CONTINUED

News of the Week

(*Continued from page 379*)

Region No. 1 of the Motor Transport Division of the American Railway Association, completed a two-day conference at Atlanta, Ga., on January 31.

The meeting, which was held at the Henry Grady Hotel, was divided into three sections, each of which had a chairman to lead the discussions, as follows: Rail motor car section, under C. J. Chenworth engineering assistant to vice-president, Atlantic Coast Line; motor coach section, E. S. Moore, General superintendent of transportation, Norfolk & Western; and the motor truck section, under L. B. Burns, assistant to the general manager, Seaboard Air Line.

The discussion centered upon the advisability of railroads operating motor coaches, and reports were prepared to be presented at the general meeting of the association to be held next month in St. Louis, Mo.

Long Island Motorman Sentenced to Prison

Charles Muller, 28 years old, motorman of an electric passenger train on the Long Island Railroad, who, last July, ran past a stop signal and allowed his train to go through an open draw, was, on January 29, sentenced in the Court of Special Sessions, Queensboro, New York City, to imprisonment in the penitentiary for an indefinite term. Muller was found guilty of violation of Section 1984 of the Penal code, which makes it a misdemeanor to handle with neglect a public conveyance.

Muller had testified in court that he was ill and had fainted as he approached the stop signal at the draw, and did not know what happened. The court held that, knowing his responsibility, he should have refused, when ill, to take out his train. Fourteen passengers were injured in the derailment. The "indefinite term," it seems, may be anywhere up to three years, the length of time being decided by a Parole Commission.

Many Railroad Land Grants Still Unadjusted

Over 26,000,000 acres of land are still involved in unsettled questions arising from 45 federal railroad land grants, according to a statement issued by the general land office, Department of the Interior, giving a review of the landgrant situation at the present time. During the period from the time of the first railroad land grant, under the act of 1850, to that of the last, 1871, according to the statement, 89 railroad land grants were made, of which 17 were forfeited for failure to construct the contemplated roads. The estimated area of the 72 remaining grants amounts to 158,293,736 acres, of which there has been certified or patented on June 30, 1928, 131,479,290 acres, leaving to be disposed of 26,814,446 acres. The areas of these grants ranges from 35,679 acres in that to the state of Michigan to 43,989,861 acres granted to the Northern Pacific. Of the 45 open grants 15 are said to be in such shape that closing them is merely a matter of adjusting certain details.

Valuation Reports for 83,000 Miles of Line

The 731 final valuation reports issued by the Interstate Commerce Commission up to December 31, 1928, show a total "final value" of $3,855,485,296 for the 83,128 miles of railroad covered, as compared with a total of $3,833,429,094 shown in the tentative and supplemental tentative valuations for the same properties, according to a review of the developments in connection with federal valuation issued by F. H. Lee, secretary of the Presidents' Conference Committee. The final valuations show an increase as compared with the tentative valuations of $11,687,085 in cost of reproduction new, an increase of $3,760,922 in present value of lands, and a decrease of $6,049,465 in working capital, making the increase in total final value $22,056,202 and the increase in final value less working capital $28,105,667.

The 731 final reports included 20 issued for water carriers, electric railroads and telegraph and telephone companies. There were 324 reports still to be issued as to steam railroads, covering 159,419 miles, which included most of the larger Class I carriers.

Senate Increases I. C. C. Appropriation

The Senate on January 31 passed the independent offices appropriation bill, carrying appropriations amounting to $7,548,825 for the Interstate Commerce Commission for the fiscal year ending June 30, 1930, with an amendment offered by Senator Wheeler, of Montana, restoring the approximately $52,000 cut out by the House as compared with the Budget estimates. This changes the amount to be appropriated for the general work of the commission from $2,834,464 to $2,887,000, and, if approved by the House, will enable the commission to carry out its plan for employing 25 additional examiners. The House appropriations committee reduced the amount proposed for the additional examiners, so as to provide for only 13, saying that they would merely increase the congestion of the work of the commissioners by working up more cases for the commissioners to decide upon. The bill was passed without even a mention of the commission, except a brief statement by Senator Warren that as chairman of the committee he had no objection to the Wheeler amendment and that it "means about a dozen field inspectors."

Consolidation Bill Considered in Committee

The Senate committee on interstate commerce on February 2 held an executive session to discuss provisions of the railroad consolidation bill 5029, introduced by Senator Fess, of Ohio, including some changes as compared with the form in which the Parker bill was reported from the House committee on interstate and foreign commerce, proposed by a subcommittee of which Senator Fess is chairman. Senator Fess made an explanatory statement and Senator Sackett, of Kentucky, made a statement opposing the provision of the bill which would relieve the Interstate Commerce Commission of the requirement in the present law that it prepare a plan of consolidation. The committee expects to resume consideration of the bill at a later date when Senator Fess will reply to Senator Sackett's argument. Efforts are being made to have the bill reported by the Senate committee, but few of the members of that committee are showing any interest in the bill.

With any assurance that the Senate would consider the bill at this session a rule would be introduced providing for a vote in the House, but those interested in the bill in the House are reluctant to do so if the Senate is not likely to take it up.

R. A. C. Henry Appointed Deputy Railways Minister of Canada

R. A. C. Henry, director of the Bureau of Economics of the Canadian National, with headquarters at Montreal, has been appointed by the Canadian Cabinet to succeed the late Graham A. Bell as Deputy Minister of Railways and Canals of the Dominion of Canada, with headquarters at Ottawa, Ont., Canada. Mr. Henry was born in Montreal on September 20, 1884. He was educated in the public schools of that city and at Westmount Academy. He was graduated from McGill university with the degrees of B. A. and B. Sc, in

R. A. C. Henry

1912, prior to which date, however, he had worked for the Canadian Pacific, from 1904 to 1908, beginning as rodman and becoming an assistant engineer. In 1908-09 he was engaged in water power work for the Dominion Department of the Interior. He was superintendent on various construction work in 1910-11 and joined the Dominion Department of Railways and Canals in 1912 in the capacity of an inspecting engineer. He was later promoted to assistant engineer and still later to general assistant engineer. On March 1, 1923, he became director of the bureau of economics of the Canadian National.

Traffic

At the annual meeting of the Indianapolis Traffic Club on January 24, the following officers were elected: President, William F. Benning, division freight agent, C. C. C. & St. Louis; first vice-president, William P. Basch, traffic manager, Link Belt Company; second vice-president, H. A. Koch, D. F. A. Penn.; third vice-president, E. C. Lipp, traffic manager of the Allied Coal & Material Company; and secretary-treasurer, Roscoe C. Johnston, assistant treasurer of the Beveridge Paper Company.

The Northwest Shippers' Advisory Board held its sixth annual meeting at Minneapolis, Minn., on January 29 at which time J. F. Reed, chairman of the board since its inception in 1923 and president of the Minnesota Farm Bureau, retired and was succeeded by Curtis L. Mosher, alternate general chairman and assistant federal reserve agent of the Federal Reserve Bank at Minneapolis. F. J. Doherty, vice-president and general counsel of the Great Northern, and A. C. Loring, president of the Pillsbury Flour Mills Company, addressed the meeting. The next quarterly meeting will be held at Aberdeen, S. D. on April 16.

A Shipment That the Railroads Did Not Get

The steamship Corner Brook which recently arrived at New Orleans from Cornerbrook, Newfoundland, delivered for the newspapers of New Orleans and vicinity, 5,078 tons of newsprint paper, or 10,917 rolls. Of this total about 2,000 rolls were sent up the Mississippi River to Memphis by barge.

P. R. R. Container Car Company Organized

The Keystone Container Car Company, Philadelphia, Pa., has been organized under the laws of Delaware, with an authorized capitalization of $1,000,000, to provide containers to be used for l.c.l. freight on various lines of the Pennsylvania. The new company will work in co-operation with this railroad but, under the powers of its charter, will be in a position to furnish cars and containers to any railroad desiring them.

The containers of the Keystone Container Car Company now in use on the Pennsylvania are of steel and have a carrying capacity of 440 cu. ft. or 10,000 lb. each. They are designed so that they may be carried upon motor trucks for the collection and delivery of freight within terminal zones and upon specially equipped flat cars for the rail haul between terminals.

Shippers Praise Railroad Service

F. W. Sargent, president of the Chicago & North Western, in an address before the Economics Club of Chicago on January 23, quoted various mercantile authorities in substantiation of the great savings which have been enjoyed by shippers and receivers of freight during the past few years in consequence of the improved freight service given by the railroads. Noting the recent manifesto of the Simmons Manufacturing Company (noticed in the *Railway Age* of January 12) he passed on to the automobile builders, the coal business and other large industries. Mr. Swayne, vice-president of General Motors, gives the railroads the principal credit for the fact that while General Motors increased its business between 1920 and 1926 about 2½ times it reduced its inventory 20 per cent. Mr. Reed, vice-president of the Peabody Coal Company, says that storage requirements have been reduced in all lines approximately 62½ per cent in the last five years, due largely to expedited and dependable railroad service. Mr. Hazelwood, president of the American Bankers' Association, quotes reliable authorities as estimating that the amount of stocks carried in lumber yards all over the country is approximately $400,000,000 less than a few years ago. Interest and depreciation saved in this field is estimated at from $60,000,000 to $80,000,000 a year. The average wholesale value of tonnage constantly in transit on the railroads is estimated at over $2,000,000,000 and the reduction in the time movement today compared with 1920 is believed to be at least 40 per cent. This represents a saving of interest charges on goods in transit alone of over $100,000,000 annually.

Hoch-Smith Resolution Before Supreme Court

Oral argument will be heard by the Supreme Court of the United States on February 25 on the validity of the Hoch-Smith resolution as administered by the Interstate Commerce Commission in the California citrus fruit case, in which the commission ordered a reduction in the rates from California to the East under the resolution shortly after a decision on a case instituted by the same complainants that the rates were not unreasonable or unduly prejudicial. The case comes before the highest court on an appeal from the decision of the district court to which the roads applied for an injunction, dismissing the bill for want of equity. In a brief filed on behalf of the railroads it is contended that the commission in entering the order misconstrued the resolution and that the latter does not direct the commission to reduce a rate on an agricultural product when the existing rate is reasonable and otherwise lawful.

Radio Service on the C. N. R.

The Canadian National has equipped all its important trains with radio-receiving apparatus and the railway operates eleven broadcasting stations from coast to coast in Canada. The radio is not an intermittent service of the Canadian National but is part of the regular daily offering to patrons in Canada and on lines in the United States. The first radio communication to be established with a moving C. N. R. train dates back to a special train on the old Grand Trunk between Toronto and Montreal on October 13, 1902, bearing the members of the American Association of General Passenger and Ticket Agents from Chicago to Portland when it was demonstrated that communication could be maintained between a station and a fast moving train by means of electric waves.

The first radio telephone broadcast to be undertaken by the C. N. R. following the decision to provide such service was on December 30, 1923, when station CHYC, Montreal, and OA, a government station at Ottawa, were tied in. On that occasion the speakers were Sir Henry Thornton, chairman and president, and other officers of the C. N. R.

On February 24, 1924, the newly organized radio department of the railway, had its own station in operation at Ottawa and eventually developed a chain of physical and "phantom" stations numbering eleven in all. In some instances the company has built its own stations and elsewhere it has taken advantage of existing facilities. On the night of December 27, 1928, system and friendly stations were tied in from Halifax, on the Atlantic, to Vancouver, on the Pacific, in what was said to be the longest east to west hook-up yet effected on the North American continent.

Each week there is a hook-up over what is known as the Eastern chain of the system including CNRQ, CNRM, CNRO, CNRT and CNRW, respectively Quebec, Montreal, Ottawa, Toronto and Winnipeg, representing a railway distance of approximately 1500 miles between the first and last named communities. This tie-in is made through the facilities of the Canadian National Telegraphs, and west of Winnipeg to the coast the hook-up can be completed over the lines of the same system.

The call letters of the stations owned and operated by the Canadian National are CNR with the initial of the city in which the station is situated added, thus CNRM is the system broadcasting station at Montreal. There is one exception to this, Moncton is CNRA, to avoid a clash with Montreal. The "A" in this instance representing the Atlantic region of the company.

On the through passenger trains of the C. N. R. radio sets have been installed with loud speakers and headsets at each chair. Trained operators, in uniform, are in charge of such sets and their instructions are to obtain the best possible programs of those being broadcast during the passage of the train.

Some remarkable feats in reception on moving trains have been recorded, one such being reception of Lima, Peru, during the international tests; and recently an operator on the "Continental Limited" while at the border of Manitoba picked up a program from London, England.

Equipment and Supplies

Locomotives

THE SOUTHERN PACIFIC is inquiring for 16 Mallet type locomotives.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC is inquiring for one 4-8-4 type and fourteen 4-6-4 type locomotives.

PICKANDS MATHER & COMPANY has ordered two 8-wheel switching locomotives from the Baldwin Locomotive Works.

THE WEYERHAEUSER TIMBER COMPANY has ordered three locomotives of the 2-6-6-2 type, and one locomotive of the 2-8-8-2 type, from the Baldwin Locomotive Works.

THE CHESAPEAKE & OHIO has ordered 15 eight-wheel switching locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of January 12.

THE ILLINOIS TERMINAL RAILROAD SYSTEM is constructing five Class O locomotives weighing 40 tons and of 250 hp. capacity and four Class C locomotives weighing 80 tons and of 1,000 hp. capacity, in its own shops.

Freight Cars

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC will soon issue inquiries for 15 caboose cars.

THE WESTERN MARYLAND has asked bids for miscellaneous items, principally shapes and plates to be used for making heavy repairs to 800 cars; the repair work is to be carried out in its own shops at three different points.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 250 ballast cars from the Standard Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of November 24. This is in addition to orders for 2250 cars reported in the *Railway Age* of February 2.

THE ELGIN, JOLIET & EASTERN has ordered 125 gondola cars from the Pressed Steel Car Company, 125 Gondola cars from the American Car & Foundry Company and will build 75 flat car bodies in its own shops. Inquiry for this equipment was reported in the *Railway Age* of December 15.

THE TEXAS COMPANY has ordered 300 tank cars of 10,000 gal. capacity from the Petroleum Iron Works; 300 tank cars of 10,000 gal. capacity and 75 of 12,000 gal. capacity from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of January 26.

THE WESTERN PACIFIC has ordered 250 automobile cars from the Pullman Car & Manufacturing Corporation, 50 tank cars from the General American Tank Car Corporation, and 50 flat cars from the Pacific Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of November 24.

THE CHICAGO & NORTH WESTERN has ordered 500 automobile cars from the General American Car Company, 500 automobile cars and 500 gondola cars from the Pullman Car & Manufacturing Corporation, and 500 gondola cars from the Standard Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of December 29.

Passenger Cars

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC will soon issue inquiries for 10 passenger cars.

THE LOUISVILLE & NASHVILLE has ordered six baggage cars from the Pressed Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of January 19. This is in addition to orders for 12 cars reported in the *Railway Age* of February 2.

THE CHICAGO & NORTHWESTERN will soon enter the market for 25 horse cars, 24 suburban coaches, 4 combination baggage and smoking cars, 1 cafe car, and 5 combination passenger and baggage cars.

Iron and Steel

THE LEHIGH VALLEY has taken bids on 400 tons of steel for bridges at Hillside and Newark, N. J.

THE CENTRAL OF GEORGIA has placed an order for 350 tons of steel for a bridge over the Flint river in Georgia.

THE SOUTHERN has ordered 360 tons of steel work in connection with a bridge over the Kentucky river at High Bridge, Ky.

THE CENTRAL OF NEW JERSEY has ordered from the Bethlehem Steel Company 1200 tons of steel for three bridges at Cranford, N. J.

THE CHICAGO & EASTERN ILLINOIS has ordered 4,000 tons of rails from the Illinois Steel Company and 2,000 tons from the Inland Steel Company.

THE GRAND TRUNK has ordered 1,875 tons of structural steel for a bridge at South Bend, Ind., from the American Bridge Company.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered 500 tons of structural steel for miscellaneous bridge work from the American Bridge Company.

THE SOUTHERN PACIFIC has divided orders for 30,000 tons of rails among the Colorado Fuel & Iron Company, the Tennessee Coal, Iron & Railroad Company and the Bethlehem Steel Company

THE PENNSYLVANIA has received bids on 3,000 tons of steel for a boiler plant at Philadelphia, Pa. The railroad placed an order with Dietrich Bros. for 285 tons of steel for a storehouse at Washington.

Machinery and Tools

THE NORTHERN PACIFIC is inquiring for an axle lathe.

THE CENTRAL R. R. OF NEW JERSEY has ordered a 15-ton crawl-tread locomotive crane for the Link Belt Company.

THE MISSOURI PACIFIC is inquiring for a 42-in. band, rip and resawing machine, a four-side moulding machine and a swing cut-off saw.

Signaling

THE CHICAGO & NORTH WESTERN has ordered from the General Railway Signal Company automatic train control apparatus for two motor cars which run between Clinton, Iowa, and Omaha, Neb.

THE ALABAMA GREAT SOUTHERN has ordered from the General Railway Signal Company an electric interlocking for Epes, Ala.; six working levers and six spare spaces.

THE BOSTON & MAINE has ordered from the General Railway Signal Company material for the installation of automatic train control on its line through Hoosac Tunnel; about five miles. The order includes seven locomotive equipments and 32 inductors.

THE BOSTON & ALBANY has ordered from the General Railway Signal Company 26 track inductors, preparatory to using automatic train control on the Highland circuit, a ten-mile Boston suburban line, the trains of which run a part of each trip on the main line.

Dispatcher Control for 15 Miles

The Paducah & Illinois has ordered from the Union Switch & Signal Company material for the installation of centralized control signaling for the whole of its line between Metropolis, Ill., and Paducah, Ky., 15 miles, mostly single track. This road is the connecting line between the Chicago, Burlington & Quincy on the north and the Illinois Central and the Nashville, Chattanooga & St. Louis on the south. In the course of the 15 miles there are five connections with branch lines. The dispatcher and the control machine will be in the N. C. & St. L. freight house, at Paducah, about 2½ miles from the nearest point on the signaled road. The order includes 13 low-voltage switch machines, of color-light signals and other apparatus. The graphic record at the central office will show the movements of trains at 15 points. This road is controlled by the three companies above named, and the installation of the signal apparatus will be made by the signal department of the Nashville, Chattanooga & St. Louis.

Supply Trade

R. L. Belknap has been appointed sales manager, central region, for the **Gold Car Heating & Lighting Company** with headquarters at Chicago. He previously served with the Locomotive Firebox Company and the Standard Stoker Company.

The Industrial Truck Association has been formed, the membership list being composed of manufacturers of electric industrial trucks, tractors, storage batteries and accessory equipment. The association is a development of the co-operative sales promotion activity which these manufacturers have conducted for the past three years through the Society for Electric Development, Inc. The new association headquarters are located at 52 Vanderbilt avenue, New York City. **C. B. Crockett** has been retained as secretary in charge of the staff operations. Supported by initial membership of 14 companies producing over 90 per cent of the products of the industry, the Industrial Truck Association has for its purpose the broadening of present markets, education of the public and the solution of materials handling problems by the use of mechanical equipment. The founders of the association also see in this co-operative effort, an opportunity for further simplification and standardization of their product and a free exchange of statistical information which characterizes the successful businesses of today. The officers of the new association form its board of directors. They are as follows: President, **M. S. Towson,** president of the Elwell-Parker Electric Company; vice-president, **E. J. Bartlett,** president of the Baker-Raulang Company; vice-president, **W. C. Allen,** president of the Yale & Towne Manufacturing Co.; treasurer, **G. A. Freeman,** president of the Automatic Transportation Company.

William J. Corbett has resigned as secretary-manager of the Steel Founders' Society of America to become assistant to the president of the **Fort Pitt Steel Casting Company,** McKeesport, Pa. Mr. Corbett was graduated from Carnegie Institute of Technology in 1914 with the degree of bachelor of science in mining engineering, and later received the degree of metallurgical engineer. He served as a special apprentice at the Alliance works of the American Steel Foundries. A year later he was transferred to the Chester works and was production engineer at the time he resigned to take a commission in the U. S. Army in 1917. After demobilization of the armed forces, Mr. Corbett was placed in charge of the manufacture of castings at Watertown arsenal until the latter part of 1919, when he returned to the service of the American Steel Foundries as assistant to the fourth vice-president, with headquarters at Chicago. In 1923 he became industrial engineer for the Electrical Steel Founders' Research Group and since 1925 he has served as secretary-manager of the Steel Founders' Society of America.

General Railway Signal Company Annual Report

Net income of $2,048,396, after allowance for taxes, was reported by the General Railway Signal Company for the year ending December 31, 1928, according to the annual report, issued January 24. The foregoing is equivalent, after preferred dividends, to $5.25 per share of outstanding common stock and compares with a 1927 net of $2,940,578 or the equivalent of $7.78 per share of common.

Selected items from the consolidated income statement follow:

	1928	1927
Gross operating income...	$3,288,910	$4,983,812
Selling, administrative and general expenses	1,146,200	1,131,464
	$2,142,710	$3,852,348
Add:		
Interest received, discount and miscellaneous income	$ 473,636	$ 96,244
Less amortization of patents and miscellaneous charges	192,951	423,013
	$ 280,685	$ 326,769
Net income before taxes	2,423,396	3,525,578
Deduct Federal and State taxes (estimated)....	375,000	585,000
Net income	2,048,396	2,940,578

W. W. Salmon, president and general manager, in his remarks to the stockholders, treats of the year's business and 1929 prospects in part as follows:

In the first half of 1928, the dollar value of railway orders received by your Company was 1.7 per cent less and in the second half of 1928, was 38.5 per cent greater than in the second half of 1927. Of the totality of railway orders placed in 1928 your Company received a gratifying percentage.

The dollar value of unfilled orders on hand January 1st, 1929, is 23.5 per cent greater than at the same period in 1928. Thus far in January, 1929 there has been a marked improvement over the average volume of orders received in the second half of 1928, and the exceptionally large inquiries now in hand from many important railways lead your Officers to hope that the greatly improved purchasing trend shown in the second half of 1928 and to date in 1929 may continue through the current year.

In 1928 your Company secured orders from 18 railways for 26 Interlocking Machines, having a total of 2360 levers. Three of these machines are larger than any heretofore in existence.

Obituary

Frederick L. Sivyer, president of the Sivyer Steel Casting Company, Milwaukee, Wis., and president of the Northwestern Malleable Iron Company, Milwaukee, who died on January 22 in Milwaukee, following injuries received in an automobile accident, was born on December 23, 1879, at Milwaukee. After graduating from Cornell University, he entered business, about 1902 with the Northwestern Malleable Iron Company, of which his father, F. W. Sivyer, was president. In 1909 he organized the Sivyer Steel Casting Company. After his father's death in 1910, he became president of the Northwestern Malleable Iron Company, of which company he remained president until its merger with the Rockford Malleable Iron Company in 1928. He was president of the Sivyer Steel Casting Company continuously from 1909. In 1917 he became vice-president of the Joliet Railway Supply Company and in 1918, he was elected president, which position he held until 1923. At the time of his death he was president of the Malleable Iron Research Institute, Cleveland, Ohio.

Samuel Wylie Miller, consulting engineer of the Union Carbide & Carbon Research Laboratories, Inc., Long Island City, N. Y., and well known as a pioneer in oxy-acetylene welding and an authority on its application, died on February 3, at his home in Hollis, Long Island, at the age of 62. Mr. Miller was a native of New York and received his degree in mechanical engineering from Stevens Institute in 1887. He served as a master mechanic for the Pennsylvania at Logansport, Ind., Indianapolis, and Columbus, Ohio, and following this was with the American Locomotive Company at Dunkirk, N. Y., and Providence, R. I., after which he founded the Rochester Welding Works at Rochester, N. Y. During the war

Samuel Wylie Miller

he served on the Welding Committee of the Emergency Fleet Corporation. In 1921 Mr. Miller joined the newly formed Union Carbide & Carbon Research Laboratories, Inc. He was a past president of the American Welding Society and an active member of many engineering and scientific societies both here and abroad. Mr. Miller was the donor of the Miller Medal awarded annually by the American Welding Society for work of conspicuous merit in advancing the art and science of welding. His important contributions to welding were many. He is credited with having been among the first members of this profession to vizualize the possibilities of oxy-acetylene welding. He wrote several books on the subject and delivered many lectures on welding at engineering meetings.

Construction

BANGOR & AROOSTOOK.—This company plans replacing its Mill Brook viaduct (a 360 ft. steel trestle) with a concrete culvert and fill on its line in Brownville, Me. The project will cost about $48,000 and all of the work will be done by the company's forces.

BOSTON & MAINE.—Two contracts have been awarded by this road to the New England Construction Company, Springfield, Mass. The first is for the construction of a turntable at Worcester, Mass., and the second for a new bridge to be built on its line near Halcyon, New Hampshire.

CLEVELAND UNION TERMINALS.—A contract has been awarded to A. Guthrie & Co., St. Paul, Minn., for the construction of bridges to carry tracks of the New York Central and the New York, Chicago & St. Louis over a number of streets at Cleveland, Ohio.

CHESAPEAKE & OHIO.—This road plans the expenditure of approximately $3,927,000 in and near Russell, Ky., for the construction of new freight car repair shops, including buildings, power house, machinery, etc., with a capacity for 12,000 freight cars per year. This amount also includes an underpass and run-around tracks under the main tracks in the east end yard to connect yards and roundhouses; new yard facilities including new trackage, re-arrangement of switches, installation of car retarders and revision of grades. Other improvements by this road, several of which were listed under a general improvement item which appeared in the *Railway Age* of July 28, 1928, include roundhouse improvements to the engine terminal at Stevens, Ky., including an extension of 13 stalls, a coaling station and other facilities to cost approximately $594,000; engine terminal improvements, including a 400-ton coaling station at Cheviot, O.; and the strengthening of 11 bridges on the Greenbrier sub-division, to accommodate heavier engines, at an approximate expenditure of $84,000. A total of $18,403,000 for improvements, extensions and betterments is expected to be spent by the Chesapeake & Ohio during the year 1929.

LEHIGH VALLEY.—This road has started construction work on a retail coal plant at Jersey City, said to be the largest of its kind in the East. It is located on the Hudson river adjacent to the Holland Tube and the Pennsylvania ferry piers. It will be occupied by Burns Brothers for local distribution of the Lehigh Valley Coal Company's anthracite coal.

LOUISVILLE & NASHVILLE.—A contract for the construction of a passenger station at Madisonville, Ky., to cost about $75,000, has been let to Platoff & Bush, Louisville, Ky.

MISSOURI PACIFIC.—The Interstate Commerce Commission has authorized the St. Louis, Brownsville & Mexico to construct an extension from a point south of Edgcouch, Tex., to a connection with its Mission branch near Weslaco, approximately 10 miles; estimated cost $304,934.

NATIONAL OF MEXICO. — This company has under construction on its lines in Mexico new water stations which will involve a total expenditure of about $210,000. At Canitas, Zac., $91,000 is being expended for the construction of a water station which will be operated by a Fairbanks-Morse 25-hp. internal combustion engine with a piston pump. This equipment will do away with the necessity of hauling water to Canitas by rail. The piston power pump at the station at Bocatoche, Coah., serving the Monclova (Coah.) terminal will be operated by two Fairbanks-Morse 80-hp. internal combustion engines. Water will be conducted for 13.9 miles through a pipe line of 5-in. and 6-in. diameter, and the total cost of the work will be $50,000. In order to serve the Tampico (Tam.) terminal in case of failure of the local electric power supply, an auxiliary internal combustion engine and generator is being installed at the water station at Tancol, Tam., at a cost of $20,000. Lesser amounts are being expended for other water stations as follows: at Pachuca, Hgo., $16,000 for the construction of a pipe line 2.8 miles in length; at Ocotlan, Jal., $15,700 for the construction of a pumping plant to take water from the Santiago river; at Empalme Aguilera, Chih., $13,000 for the construction of a plant which will take the place of a station at Borjas, Chih. Electrical pumping equipment is being installed in water stations at Sabinas, Coahuila, at Cartagena, Go., and at Chirimoya.

NEW YORK CENTRAL.—This road plans the construction of a new freight and switching yard with a capacity of 2,000 freight cars on its lines at Black Rock, north of Buffalo, N. Y. The company has taken option on 128 acres of land just north of the Buffalo city line and plans to start construction early in the spring. The yard will first be developed for a capacity of 560 cars. The new project will serve the industrial territory between Black Rock and Tonawanda, N. Y., and will cost approximately $1,000,000, with an expenditure of $500,000 of this amount contemplated for this year.

SACRAMENTO NORTHERN.—Examiner M. S. Jameson of the Interstate Commerce Commission has recommended that the commission deny this company's application for authority to build an extension of its Holland line, 7.75 miles, in Yolo and Sacramento counties, Calif.

SOUTH PLAINS & SANTA FE.—This company has applied to the Interstate Commerce Commission for authority to build a line from Seagraves to Lovington, Tex., with a 15-mile branch along the Texas-New Mexico state line, a total of 89.5 miles.

Financial

ATLANTIC COAST LINE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to procure authentication and delivery of $3,724,000 of Series A, 4½ per cent, general unified mortgage 50-year bonds in respect to capital expenditures made, the bonds to be held in the company's treasury.

BALTIMORE & OHIO. — *Consolidation Plan Rumor.*—It is reported that the Baltimore & Ohio will shortly apply to the Interstate Commerce Commission for authority to acquire control of the Reading and the Central of New Jersey. This report is not officially confirmed, although Vice-President George M. Shriver is quoted as saying that a consolidation plan for the system is under consideration.

BEAVER MEADE & ENGLEWOOD.—*Securities.*—The Interstate Commerce Commission has authorized this company to issue $605,700 of capital stock and $591,000 of first mortgage 6 per cent bonds to be disposed of at not less than par to finance construction.

CAROLINA, CLINCHFIELD & OHIO.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $1,014,000 of first and consolidated mortgage bonds, Series B, and to deliver them at par in equal shares to the Atlantic Coast Line and the Louisville & Nashville in partial reimbursement for capital expenditures. The two last named roads assume obligation and liability as joint lessees in respect to these bonds. The Clinchfield Company of South Carolina has been authorized to issue a promissory note for $34,714 and the Clinchfield Northern (Kentucky) to issue a promissory note for $6,201 to be delivered to the parent Clinchfield Company in payment of indebtedness for additions and betterments.

CENTRAL VERMONT.—*Reorganization.*—Reorganization legislation for this company was proposed at a joint meeting of the Vermont legislature house and senate committees on corporations and franchises at Montpelier on January 29 by Judge J. W. Redmond, one of the receivers of the company. Provision is made for a foreclosure sale of the property and the formation of a new Vermont company organized to take the title to the property once it is sold. The new company, Judge Redmond explained, would be formed under the general laws of Vermont. The legislation asked for would enable the Canadian National Railways to own the stocks and bonds of the proposed new company and to have the same relations with the new company as with the old.

CHICAGO & WESTERN INDIANA.—*Bonds*—The Interstate Commerce Commission has authorized this company to issue $186,000 of consolidated 4 per cent mort-

gage bonds to be delivered to this company's tenants for sinking fund payments.

DETROIT, TOLEDO & IRONTON—*Abandonment*—This company has applied to the Interstate Commerce Commission for authority to abandon its Wellston branch, from Jackson to Wellston, Ohio, 17.43 miles.

PITTSBURGH & WEST VIRGINIA—*Acquisition*—This company has applied to to the Interstate Commerce Commission for authority to acquire control of the Western Maryland by purchase of its stock at a price to be fixed by the commission. The application stated that when its Connellsville extension, from Cochran's Mill to Connellsville, Pa., is completed, there will be a direct connection between it and the Western Maryland, and that these lines and the Wheeling & Lake Erie would form a short through route between tidewater and the Great Lakes. It is in the public interest, it said, that this short route should be available and that the control of the Western Maryland, now vested in the Baltimore & Ohio, should be held by the P. & W. V., whose relation to the Western Maryland is non-competitive. The applicant said it was not in a position to give a reliable estimate of the value of the stock which it would have to acquire in order to obtain control but that the maximum price is a matter to be determined by the commission.

SEABOARD AIR LINE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $1,295,000 of first and consolidated mortgage bonds, Series A, to be pledged and repledged as collateral security for short-term notes.

SOUTHERN PACIFIC—*Abandonment*—Examiner Thomas F. Sullivan of the Interstate Commerce Commission has recommended to the commission that it authorize the abandonment by the El Paso & Southwestern and the abandonment of operation by the Southern Pacific as lessee, of the line between Deming and Hermanas, N. M., about 32 miles.

Valuation Reports

The Interstate Commerce Commission has made public final valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates as follows:

Sierra of California	$2,182,775	1916
Piney River & Paint Creek	265,000	1916
Northampton & Bath	328,000	1918

Dividends Declared

Bangor & Aroostook.—Common, $.88, quarterly; Preferred, 1¼ per cent, quarterly, both payable April 1 to holders of record February 28.

Buffalo, Rochester & Pittsburgh.—Common, 2 per cent; Preferred, 3 per cent, both payable February 15 to holders of record February 8.

Green Bay & Western.—5 per cent, payable February 11 to holders of record February 9.

New York, Chicago & St. Louis.—Common, $1.50, quarterly; Preferred, $1.50, quarterly, both payable April 1 to holders of record February 15.

Average Prices of Stocks and of Bonds

	Feb. 5	Last week	Last year
Average price of 20 representative railway stocks	136.81	132.07	115.61
Average price of 20 representative railway bonds	92.00	93.08	97.12

Railway Officers

Executive

T. M. Jones, chief clerk to the vice-president of the Baltimore & Ohio, with headquarters at Baltimore, Md., has been appointed assistant to the vice-president, with the same headquarters. Mr. Jones was born at St. Louis, Mo., on November 15, 1886. He was educated in the public schools of Connellsville, Pa., and entered the service of the Baltimore & Ohio on September 1, 1901, as yard clerk. He subsequently served as clerk to the general yardmaster, clerk in the superintendent's office and assistant chief clerk in the superintendent's office. In

T. M. Jones

July, 1911, Mr. Jones went to Pittsburgh, Pa., as chief clerk in the superintendent's office, remaining in that position for five years. He was appointed chief of the bureau of special reports, Federal and State, at Baltimore on January 19, 1916, and in July, 1918, he was appointed chief of the Improvement Bureau of the Eastern lines. During federal control of the railroads Mr. Jones was chief clerk to the assistant federal manager and chief clerk to the federal manager. At the end of that period, when the roads were returned to private management, the federal manager was appointed vice-president of the Baltimore & Ohio and Mr. Jones became chief clerk to the vice-president, serving in that capacity until his recent promotion to the position of assistant to the vice-president.

Financial, Legal and Accounting

J. W. Simpson has been appointed assistant to the auditor of the Rutland, with headquarters at Rutland, Vt.

C. H. Maurice, acting auditor of the Rutland, with headquarters at Rutland, Vt., has been appointed auditor, with the same headquarters.

J. P. Holly, auditor of freight overcharge claims of the Chicago, St. Paul, Minneapolis & Omaha, has been promoted to auditor of freight accounts, with headquarters as before at St. Paul, Minn.

F. L. Doody, auditor of freight accounts of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, has been appointed auditor of passenger accounts of the Chicago & Northwestern, with headquarters at Chicago. **Charles L. Lowe,** auditor of expenditures of the Northwestern, with headquarters at Chicago, retired from active duty on February 1, after 57 years of service with that railway. The office of auditor of expenditures has been abolished.

Frank A. Hogberg, assistant land and tax commissioner of the Illinois Central, has been promoted to land and tax commissioner, with headquarters as before at Chicago. Mr. Hogberg has been connected with the Illinois Central for more than 40 years. He was born at Chicago on January 12, 1871, and entered railway service as a messenger in the accounting department of the Illinois Cen-

Frank A. Hogberg

tral when 17 years of age. Later he was transferred to the office of the auditor of freight receipts, where he was advanced successively through the positions of waybill clerk, tonnage clerk and abstract clerk. In July, 1900, Mr. Hogberg became chief clerk in the tax department, being promoted to assistant land and tax commissioner on June 16, 1927. His further promotion to land and tax commissioner became effective on January 1.

George F. May, assistant secretary of the Baltimore & Ohio, with headquarters at Baltimore, Md., has been appointed secretary, succeeding C. W. Woolford, resigned. Mr. May was born on July 22, 1871, at Brooklyn, N. Y. He was educated in the public schools and entered railroad service on January 5, 1892, as clerk for the Balti-

more & Ohio, southwestern lines. He subsequently served as stenographer, traveling secretary and secretary to the president of the Baltimore & Ohio Southwestern. He was promoted to

George F. May

the position of secretary of the Southwestern lines in January, 1900, and, on September 15, 1902, he was appointed assistant secretary of the Baltimore & Ohio, serving in that capacity until his recent promotion to secretary of that road.

Custis W. Woolford, secretary of the Baltimore & Ohio for 32 years, retired from the service of that company on February 1, because of impaired eyesight. Mr. Woolford was born on October 19, 1859, and entered the service of the Baltimore & Ohio as messenger boy and operator in 1873. From 1877 to 1879 he was operator and bill clerk of the Baltimore & Ohio Express warehouse at Baltimore and from the latter date to 1880 he was secretary to the manager of express. He then served

Custis W. Woolford

as secretary to the assistant general passenger agent and in 1889 he was appointed ticket supply clerk. He was chief clerk to the secretary from 1893 to 1896 and from July 1, 1896 until January of the following year he was acting secretary. On January 1, 1897, Mr. Woolford was appointed secretary of the Baltimore & Ohio and its subsidiary lines, including the Baltimore & Ohio Southwestern and the Baltimore & Ohio Chicago Terminal Railroad and he has served in that capacity continuously since that time. Mr. Woolford's entire 55 years of railroad service has been with the Baltimore & Ohio.

Operating

G. W. Buzby has been appointed superintendent of police of the Eastern region of the Pennsylvania, succeeding **J. C. Harper,** retired.

F. J. MacKie, acting assistant general manager of the Coast lines of the Atchison, Topeka & Santa Fe, has been promoted to assistant general manager, with headquarters at Los Angeles, Cal.

R. L. Longshore, division engineer on the Wabash, with headquarters at Montpelier, Ohio, has been appointed general manager of the Toledo & Western, a subsidiary of the Wabash, with headquarters at Toledo, Ohio. Mr. Longshore succeeds **H. O. Kelley,** who has been appointed superintendent of the Springfield division of the Wabash, with headquarters at Springfield, Ill., replacing **L. W. Karnes,** deceased.

W. T. Ennis, who has been promoted to terminal superintendent of the Union Pacific at Pocatello, Idaho, has been in railway service for nearly 30 years. He was born at Baraboo, Wis., on August 16, 1880, and graduated from the High School in that city in 1899. In June of

W. T. Ennis

the latter year he entered railroad service on the Chicago & North Western as a yard clerk, becoming a fireman several months later. From June, 1902, to December, 1903, Mr. Ennis served as a brakeman on the Southern Pacific, then entering the service of the Oregon Short Line as a switchman at Pocatello. In 1905 he was transferred to train service, acting successively as freight and passenger conductor until August, 1918, when he was advanced to trainmaster at Nampa, Idaho. Mr. Ennis' promotion to superintendent of the Pocatello terminal became effective on January 10.

Hugh P. Walden, assistant to the vice-president and general manager of the Pullman Company, with headquarters at Chicago, has retired from active duty after 46 years service with that company.

A. Syverson, superintendant of the Lake Superior & Ishpeming, has been promoted to assistant general manager, with headquarters as before at Marquette, Mich., and the position of superintendent has been abolished.

Harry P. Congdon, assistant superintendent of the Western division of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. James, Minn., has been promoted to assistant to the general manager, with headquarters at St. Paul, Minn. Mr. Congdon succeeds **Thomas W. Kennedy,** who retired under the pension rules of the company on February 1.

Norvin A. Meyer, who has been promoted to superintendent of transportation of the Western lines of the Chicago, Milwaukee, St. Paul and Pacific, with headquarters at Seattle, Wash., has been in the service of that railway for nearly 27 years. He was born at Woodland,

Norvin A. Meyer

Wis., on April 20, 1889, and entered railway service on March 2, 1902, as a telegraph operator on the Northern division of the Milwaukee. Later he was advanced to relief agent on the same division and in May, 1907, he was promoted to train dispatcher at Milwaukee, Wis., where he remained until December, 1917, when he was further promoted to chief dispatcher. Mr. Meyer served in that capacity on the Iowa and Dakota division at Mason City, Iowa, until September, 1918, when he was advanced to terminal trainmaster at Milwaukee. From May, 1919, to March, 1923, he served successively as assistant superintendent of transportation at Chicago and as assistant superintendent of the Chicago terminal division, then being promoted to assistant superintendent of transportation of the Western lines, with

headquarters at Seattle. His promotion to superintendent of transportation of the Western lines became effective on January 1.

Traffic

Robert H. Laing, general passenger agent of the St. Louis Southwestern, with headquarters at St. Louis, Mo., has been promoted to passenger traffic manager, with headquarters at Tyler, Tex., and the office of general passenger agent at St. Louis has been abolished.

William H. Abel, general passenger agent of the Chicago & Alton, has been promoted to passenger traffic manager, with headquarters as before at Chicago, succeeding **George J. Charlton,** deceased. Mr. Abel has been in the service of the Alton for nearly 41 years. He was born at Elizabethtown, N. Y., and obtained his college education at the University of Vermont, entering railroad service in 1884 as contracting agent of the Erie Despatch Fast Freight Lines at Kansas City, Mo. Four years later he became city passenger agent of the Alton at Denver, Colo., where he remained

William H. Abel

until 1890 when he was advanced to southwestern passenger agent at Dallas, Tex. From September, 1904 to September, 1908, Mr. Abel served as division passenger agent of the C. & A. at Springfield, Ill., then being promoted to assistant general passenger agent, with headquarters at Kansas City. He was again promoted to assistant passenger traffic manager of the C. & A., with headquarters at St. Louis, Mo., in February, 1914, and since 1916 he has had the title of general passenger agent, with headquarters at Chicago. Mr. Abel's promotion to passenger traffic manager became effective on February 1.

George H. Clark, assistant to the traffic manager of the New York Central, with headquarters at New York, has been appointed general freight agent in charge of solicitation, with the same headquarters. Mr. Clark was born in Brooklyn, N. Y., on February 7, 1878, and was educated in the public schools. He entered the service of the New York Central in January, 1900, with the Merchants Despatch (New York Central fast freight lines) at New York. On June 8, 1904, Mr. Clark was appointed contracting freight agent and in March, 1905, he became chief clerk to the general eastern freight agent. He served in that capacity until November, 1911, when he was appointed division freight agent at Utica, N. Y. The following year he was appointed general freight and passenger agent of the Ottawa & New York (now part of the New York

George H. Clark

Central), with headquarters at Ottawa, Ont., and in April, 1916, when the Ottawa & New York was taken over by the New York Central, he was appointed division freight and passenger agent at Ottawa. In January, 1922, he was appointed division freight agent at New York and in December, 1923, he was promoted to assistant general freight agent. Three years later h was appointed assistant to the traffic manager, in which capacity he served until January 15, when he was promoted to general freight agent.

Engineering, Maintenance of Way and Signaling

L. L. Wiggins, supervisor of track of the Rutland, with headquarters at Malone, N. Y., has been appointed office and valuation engineer, with headquarters at Rutland, Vt., succeeding F. R. Stevens, deceased.

C. A. Johnston, track supervisor on the Chicago Terminal division of the Wabash, has been promoted to division engineer of the Detroit division, with headquarters at Montpelier, Ohio. **C. T. Warren,** maintenance inspector, has been appointed acting division engineer of the Detroit Terminal division, with headquarters at Detroit, Mich., succeeding **J. C. Bousfield,** who has been appointed resident engineer on the construction of the Union Pacific Terminal at Detroit.

J. George Bloom, who retired as engineer of maintenance of way of the Chicago, Rock Island & Pacific, with headquarters at Chicago, on February 1, had been in railway service for more than 34 years. He was born on November 25, 1869, at Xenia, Ohio, and graduated from Ohio State University with the degree of civil engineer. In August, 1889, Mr. Bloom entered railroad service as a chainman on the Pennsylvania at Cincinnati, Ohio, then for the following 14 years acting successively as assistant engineer for the Kenova Land Association, assistant supervisor on the Norfolk & Western and assistant engineer at Cincinnati, division engineer at Flora, Ill., principal assistant engineer at Cincinnati and division engineer at Chillicothe, Ohio, on the Baltimore & Ohio Southwestern (now part of the Baltimore & Ohio) and division engineer on the B. & O. at Newcastle, Pa. From June, 1903, to December, 1909, he served the Rock Island as district engineer at Topeka, Kan., and as en-

J. George Bloom

gineer of maintenance and district engineer of the Southwestern and Choctaw districts. He then left railway work to become president of the Southern Ballast Company at Denison, Tex., where he remained until July, 1912, when he was appointed superintendent of construction of the John F. Stevens Construction Company at New York. In October, 1914, he returned to the Rock Island to become connected with the valuation department at Chicago, being transferred to the operating department as superintendent of the Amarillo division, with headquarters at Amarillo, Tex., in July, 1916. Mr. Bloom was transferred to the Louisiana division, with headquarters at El Dorado, Ark., two years later and in May, 1921, he was appointed division engineer of the Nebraska-Colorado division at Fairbury, Neb. He was promoted to engineer of maintenance of way of the Rock Island system in May, 1922.

L. J. Hughes, who has been promoted to engineer of maintenance of way of the Chicago, Rock Island & Pacific, with

headquarters at Chicago, has been connected with the engineering department of that railway for more than 20 years. He was born at Billerica, P. Q., on May 24, 1884, and graduated from the Park River (N.D.) High School. In 1905 he was graduated from Rensselaer Polytechnic Institute, then serving during the following year in the engineering departments of the Illinois Tunnel Company and the American Bridge Company. Mr. Hughes entered railroad service as a draftsman in the bridge department of the Rock Island on October 1, 1906, later being advanced to bridge inspector. In 1910 he was promoted to assistant engineer at Davenport, Iowa. From 1911 to 1917 he served successively

L. J. Hughes

as division engineer at Dalhart, Tex., at Eldon, Mo., and at Herington, Kan., then being promoted to special engineer, reporting to the chief engineer. In the United States during the World War, Mr. Hughes was a first lieutenant in the First Engineers, Illinois National Guard, and a first lieutenant in the 108th Engineers. In France he was captain of the latter unit, serving with the 33rd Division in the Somme, St. Mihiel and Meuse-Argonne offensives. Returning to the United States in 1919 he was appointed a general inspector of maintenance of way of the corporate organization of the Rock Island, then becoming division engineer of the Chicago Terminal division. In 1923 he was advanced to special engineer, reporting to the chief engineer, with headquarters at Chicago. Mr. Hughes' further promotion to engineer of maintenance of way became effective on February 1.

Obituary

W. H. Dyer, superintendent of motive power of the Georgia & Florida, with headquarters at Douglas, Ga., died at his home in that city on January 8 from a heart attack.

Michael T. Lanigan, auditor and assistant secretary of the Georgia & Florida, with headquarters at Augusta, Ga., died in that city on January 13 after an illness of five weeks.

W. H. King, Jr., assistant to the president of the Seaboard Air Line, with headquarters at Norfolk, Va., was killed on February 2 when he fell from a window of the Belvedere hotel in Baltimore, Md.

James E. Turk, former general superintendent of the Reading, died at his home in Haddon Heights, N. J., on January 30, after a prolonged illness. Mr. Turk, who was 74 years old, retired from active service on the Reading in 1926, after being with the company for nearly 37 years.

Thomas D. Elliott, general western agent of the Boston & Maine, with headquarters at Chicago, died at his home in that city on February 5 from heart disease. A sketch of Mr. Elliott's railway career and a reproduction of his photograph appeared in the *Railway Age* of March 17, 1928, page 657.

F. R. Stevens, office and valuation engineer of the Rutland at Rutland, Vt., died at his home in that city on January 20, from spinal meningitis. Mr. Stevens had been in the service of the Rutland since 1910, having served in various capacities until November, 1927, when he was appointed office and valuation engineer.

H. H. Vance, general superintendent on the Lines West of the Southern, with headquarters at Birmingham, Ala., died, following a heart attack, on February 2, at the age of 59. Mr. Vance was born in Alabama and received a high school education. He entered railway service in 1887 as brakeman on the Alabama Great Southern (now a part of the Southern). Until 1895 he was freight conductor on the same road, and from 1895 until 1903 was passenger conductor. From 1903 until 1912 Mr. Vance was trainmaster at Birmingham, Ala., and then served as superintendent of terminals of the Southern at that place until 1915. From 1915 until December, 1920, he was division superintendent there, and since that date has been general superintendent.

Michael J. Drury, former mechanical superintendent and superintendent of shops of the Atchison, Topeka & Santa Fe, died from heart disease at his home at Topeka, Kan., on January 29, after a two weeks' illness. Mr. Drury had been in railway service for 59 years, nearly 40 of which were spent on the Santa Fe. He was born at Birkenhead, England, on May 24, 1849, and attended public school at Parkersburg, W. Va., and Louisville, Ky. From 1866 to 1870 he served an apprenticeship as a machinist at Parkersburg, then entering railroad service on January 1 of the latter year as a machinist on the Baltimore & Ohio at Grafton, W. Va. From 1876 to 1889 he was successively a machinist on the B. & O. at Chicago Junction, Ohio, machinist, gang foreman and machine shop foreman on the Missouri-Kansas-Texas at Parsons, Kan., machinist on the Lake Shore & Michigan Southern (now part of the New York Central) at Elkhart, Ind., night foreman on the Fort Worth & Denver City at Fort Worth, Tex., and machinist on the Denver & Rio Grande at Denver, Colo., Pueblo and Salida. Mr. Drury then became a machinist and gang foreman on the Santa Fe at Topeka and for the following 13 years he was successively general foreman at La Junta, Colo., and Arkansas City, Kan., and division foreman at Arkansas City. In September, 1902 he was advanced to master mechanic of the First and Second districts of the Albuquerque division at Winslow, Ariz., where he remained until May, 1906, when he was transferred to the New Mexico and Rio Grande divisions at Raton, N. M. In November of the latter year he was promoted to mechanical superintendent of the Western lines of the Santa Fe, with headquarters at La Junta, and in May, 1912, he was appointed superintendent of shops at Topeka. Since 1923 Mr. Drury had been a system mechanical inspector.

George James Charlton, passenger traffic manager of the Chicago & Alton, who died at Chicago on January 28, was born at Hamilton, Ont., on September 9, 1860. He attended public and private schools and entered railway service when 15 years of age as a messenger boy in the general passenger department of the Alton. Later he served successively as junior clerk, conductor's clerk, ticket stock clerk, rate clerk and ticket accountant in the same department, being promoted to assistant general passenger agent at Chicago in March, 1885. In January, 1900, Mr. Charlton was again promoted to general passenger agent, with headquarters at Chicago, and in December, 1909, he was further promoted to passenger traf-

George James Charlton

fic manager of the Alton, with the same headquarters. From December, 1907, to September, 1912, he was also sucessively general passenger agent and passenger traffic manager of the Toledo, St. Louis & Western (now part of the New York, Chicago & St. Louis.) For a short period he served in addition as passenger traffic manager of the Iowa Central and its successor, the Minneapolis & St. Louis.